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August 17, 2011

VIA EMAIL AND US MAIL

Mr. Eric Solorio, Siting Project Manager
California Energy Commission
1516 Ninth Street
Sacramento, California 95814

Re: Pio Pico Energy Center Project (11-AFC-01)
Responses to Data Requests, Set 2 (#60-71) [Air Quality]

Dear Mr. Solorio:

On behalf of Pio Pico Energy Center LLC, please find Applicant's responses to Staff's Data Requests, Set 2 (#60-71). While electronic versions of the responses will be served to all parties, the voluminous nature of certain air quality modeling files prevents Applicant from serving such files electronically. Therefore, Applicant will serve all parties with such modeling files contained on a disk.

Should you have any questions or concerns related to this filing, please contact me directly.

Respectfully submitted,

Melissa A. Foster

MAF:kjh
Enclosures
cc: See Proof of Service List

BACKGROUND: CONSTRUCTION EMISSIONS AND MODELING

Staff's ongoing review of the construction emission calculations (Appendix G-2) reveals several possible errors. For example, dramatically different fuel use totals are shown in the derivation of total GHG emissions in Table G-2.6 and in the list of equipment units in Table G-2.11 and Table G-2.15, and different numbers of units are shown in Table G-2.15 and Table G-2.16. Staff is not able to verify the accuracy of the calculations without further details. Response to Data Request 3 does not address staff's request. AFC tables categorize the construction emission sources into onsite construction equipment, fugitive dust, etc. But the modeling files contain 21 sources with generic names (SPMA1, BPMA1, etc). Staff is not able to match the source parameters used in dispersion modeling with the emission sources listed in AFC Table 5.2-14 and Table 5.2-15.

Technical Area: Air Quality

Data Request AQ-60: Please correct the errors in the construction emission calculations and revise all related AFC tables.

Response: Revised tables and text are provided in Attachment 1.

Technical Area: Air Quality

Data Request AQ-61: Please provide the worksheets used for construction emission calculations in electronic spreadsheet format, in sufficient form to enable staff to replicate the calculations.

Response: An electronic copy of the spreadsheet used to generate the revised tables is included with this submittal.

Technical Area: Air Quality

Data Request AQ-62: Please provide a list or table to interpret the sources in the construction dispersion modeling file as they relate to the activities and equipment described in the emission calculations.

Response: Table DR-62.1 provides detail on the construction modeling for short-term impacts (24 hours and less). Table DR-62.2 provides detail on the construction modeling for long-term impacts (longer than 24 hours). These are new tables and are taken directly from the spreadsheet that is being provided under DR-61.

For each combustion pollutant, the construction area is represented by a single volume source and the laydown area is represented by two volume sources. Total combustion emissions are distributed as follows: Active Construction Area 80 percent, Laydown Area 1 10 percent, Laydown Area 2 10 percent.

The construction area is represented as a single volume source for construction activity dust. All construction activity dust is assigned to the Construction Area.

The construction area and laydown area are each represented as an area source for windblown dust. Windblown Dust is distributed as follows: Construction Area 63 percent, Laydown Area 27 percent (based upon relative area).

Table DR 62.3 lists the source label assigned to each volume or area source.

TABLE DR 62.1
PPEC CONSTRUCTION MODELING –
SHORT-TERM IMPACTS (24 HOURS AND LESS)

Total	NO_X	CO	SO_X	$PM_{2.5}$	PM_{10}
Combustion (lbs/day)	44.8	19.9	0.06	4.43	21.18
Construction Dust (lbs/day)				2.54	18.68
Windblown Dust (lbs/day)				0.40	1.00
Active Construction Area					
Combustion (lbs/day)	35.9	15.9	0.0	3.55	16.95
Combustion (hrs/day)	8.00	8.00	8.00	8.00	8.00
Combustion (lbs/hr)	4.48	1.99	0.01	0.44	2.12
Combustion (g/sec)	0.56	0.25	0.00	0.06	0.27
No. of volume sources	1.00	1.00	1.00	1.00	1.00
Each volume source (g/s)	5.648E-01	2.502E-01	6.957E-04	5.586E-02	2.669E-01
Construction Dust (lbs/day)				2.54	18.68
Construction Dust (hrs/day)				8.00	8.00
Construction Dust (lbs/hr)				0.32	2.33
Construction Dust (g/sec)				0.04	0.29
No. of volume sources				1.00	1.00
Each volume source (g/s)				4.002E-02	2.942E-01
Windblown Dust (lbs/day)				0.25	0.62
Windblown Dust (hrs/day)				24	24
Windblown Dust (lbs/hr)				0.01	0.03
Windblown Dust (g/sec)				1.31E-03	3.26E-03
Windblown Dust (g/sec.m2)				3.872E-08	9.680E-08
Laydown Area					
Combustion (lbs/day)	9.0	4.0	0.0	0.89	4.24
Combustion (hrs/day)	8.00	8.00	8.00	8.00	8.00
Combustion (lbs/hr)	1.12	0.50	0.00	0.11	0.53
Combustion (g/sec)	0.14	0.06	0.00	0.01	0.07
No. of volume sources	2.00	2.00	2.00	2.00	2.00
Each volume source (g/s)	7.060E-02	3.127E-02	8.696E-05	6.982E-03	3.336E-02
Construction Dust (lbs/day)				0.00	0.00
Windblown Dust (lbs/day)				0.15	0.37

Total	NO_X	CO	SO_X	$PM_{2.5}$	PM_{10}
Windblown Dust (hrs/day)				24	24
Windblown Dust (lbs/hr)				0.006	0.016
Windblown Dust (g/sec)				7.84E-04	1.96E-03
Windblown Dust (g/sec.m2)				3.212E-08	8.030E-08

Notes:
Size of active construction area: 33,727.6 m^2.
Size of active laydown area: 24,395 m^2.
Construction shift: 8:00 a.m. to 5:00 p.m.

TABLE DR 62.2
PPEC CONSTRUCTION MODELING—LONG-TERM IMPACTS (ANNUAL)

Total	NO_X	CO	SO_X	$PM_{2.5}$	PM_{10}
Combustion (tons/yr)	4.7	2.3	0.0	0.17	0.2
Construction Dust (tons/yr)				0.2	1.5
Windblown Dust (tons/yr)				0.07	0.2
Active Construction Area					
Combustion (tons/yr)	3.8	1.8	0.0	0.14	0.1
Combustion (days/yr)	264.00	264.00	264.00	264.00	264.00
Combustion (hrs/day)	8.00	8.00	8.00	8.00	8.00
Combustion (lbs/hr)	3.58	1.73	0.00	0.13	0.13
Combustion (g/sec)	0.45	0.22	0.00	0.02	0.02
No. of volume sources	1.00	1.00	1.00	1.00	1.00
Each volume source (g/s)	4.511E-01	2.185E-01	5.554E-04	1.620E-02	1.633E-02
Construction Dust (tons/yr)				0.2	1.5
Construction Dust (days/yr)				264.00	264.00
Construction Dust (hrs/day)				8.00	8.00
Construction Dust (lbs/hr)				0.22	1.39
Construction Dust (g/sec)				0.03	0.17
No. of volume sources				1.00	1.00
Each volume source (g/s)				2.774E-02	1.747E-01
Windblown Dust (tons/yr)				0.05	0.1
Windblown Dust (days/yr)				365	365
Windblown Dust (hrs/day)				24.00	24.00
Windblown Dust (lbs/hr)				0.010	0.026
Windblown Dust (g/sec)				0.001	0.003
Windblown Dust (g/sec.m2)				3.872E-08	9.680E-08
Laydown Area					
Combustion (tons/yr)	0.9	0.5	0.0	0.03	0.03
Combustion (days/yr)	264.00	264.00	264.00	264.00	264.00
Combustion (hrs/day)	8.00	8.00	8.00	8.00	8.00
Combustion (lbs/hr)	0.90	0.43	0.00	0.03	0.03
Combustion (g/sec)	0.11	0.05	0.00	0.00	0.00
No. of volume sources	2.00	2.00	2.00	2.00	2.00

Total	NO_X	CO	SO_X	$PM_{2.5}$	PM_{10}
Each volume source (g/s)	5.639E-02	2.731E-02	6.943E-05	2.025E-03	2.041E-03
Construction Dust (tons/yr)				0.00	0.00
Windblown Dust (tons/yr)				0.03	0.07
Windblown Dust (days/yr)				365	365
Windblown Dust (hrs/day)				24.00	24.00
Windblown Dust (lbs/hr)				0.006	0.016
Windblown Dust (g/sec)				0.001	0.002
Windblown Dust (g/sec.m2)				3.212E-08	8.030E-08

TABLE DR 62.3
PPEC CONSTRUCTION SOURCE LABELS FOR MODELING

		Active Construction Area		Laydown Area	
Averaging Time	**Pollutant**	**Source Type**	**Label**	**Source Type**	**Label**
1 Hour	NO_2	VOLUME	SNOVOL1	VOLUME	SNOVOL2 SNOVOL3
1, 3, 24 Hour	SO_2	VOLUME	SSOVOL1	VOLUME	SSOVOL2 SSOVOL3
24 Hour, Annual	Combustion $PM_{2.5}$	VOLUME	SCBPMVL1	VOLUME	SCBPMVL2 SCBPMVL3
24 Hour, Annual	Constr. Dust $PM_{2.5}$	VOLUME	SCNPMVL1	--	--
24 Hour, Annual	Windblown Dust $PM_{2.5}$	AREA	SPMA1	AREA	SPMA2
24 Hour, Annual	Combustion PM_{10}	VOLUME	BCBPMVL1	VOLUME	BCBPMVL2 BCBPMVL3
24 Hour, Annual	Constr. Dust PM_{10}	VOLUME	BCNPMVL1	--	--
24 Hour, Annual	Windblown Dust PM_{10}	AREA	BPMA1	AREA	BPMA2
Annual	NO_2	VOLUME	LNOVOL1	VOLUME	LNOVOL2 LNOVOL3
Annual	SO_2	VOLUME	LSOVOL1	VOLUME	LSOVOL2 LSOVOL3

Source Group Names (with names of sources they represent):

1hrNOx	SNOVOL1-SNOVOL3		
STCO	SCOVOL1-SCOVOL3		
STSO2	SSOVOL1-SSOVOL3		
PM25S	SCBPMVL1-SCBPMVL3	SCNPMVL1	SPMA1-SPMA2
PM10S	BCBPMVL1-BCBPMVL3	BCNPMVL1	BPMA1-BPMA2
COMPM25	SCBPMVL1-SCBPMVL3		
COMPM10	BCBPMVL1-BCBPMVL3		
ANNOx	LNOVOL1-LNOVOL3		
ANSO2	LSOVOL1-LSOVOL3		

BACKGROUND: CUMULATIVE AIR QUALITY IMPACTS

Staff's first round of data requests sought correspondence from the San Diego County Air Pollution Control District (the District) that listed sources eligible for inclusion in the cumulative impact analysis. The applicant's Responses to Data Requests 11 and 12 are deficient because they do not explain the various attachments from the District (Exhibits 1A to 1E). An explanation of the rationale for selecting sources or facilities for evaluation in the cumulative impact analysis remains missing. Response to Data Request 12 says that "the District has recommended" modeling four facilities, but this is without citation or any rationale for why those four were selected. There is no evidence that the District was the party that actually selected the four facilities for cumulative modeling (i.e., Larkspur Energy, Pacific Recovery Corp, Otay Mesa Generating Power Plant, and CalPeak Border). Selecting facilities for cumulative modeling should focus on projects that are likely to adversely affect ambient air quality in areas impacted by the proposed project. For previous cases (see decisions on Lodi Energy Center, 08-AFC-10 and Humboldt Bay Repowering Project, 06-AFC-7), staff focused on new stationary sources that could emit over 10 pounds per day of any nonattainment pollutant, which is a cutoff that the San Diego Air Pollution Control District uses in requiring emission controls per District Rule 20.3(d).

Technical Area: Air Quality

Data Request AQ-63: Please provide titles, dates, and descriptions for Exhibits 1A to 1E attached with Response to Data Request 11.

Response: The requested information is provided in Table DR-63.1.

TABLE DR 63.1
LIST OF EXHIBITS ATTACHED TO RESPONSE TO DATA REQUEST 11

Exhibit	Title	Date	Source of Exhibit	Description
1A	CA Dept of Corrections	12/13/2010	Document provided by SDAPCD as an attachment to Exhibit 1B in response to applicant's request for information about nearby sources	SDAPCD information (stack parameters and emissions) for permitted sources at the California Department of Corrections Donovan facility
1B	Email S Moore to S Hill	12/17/2010	Document provided by SDAPCD in response to applicant's request for information about nearby sources	SDAPCD response to applicant's request for sources to consider for inclusion in cumulative impact analyses
1C	Facilitywide EASIER printout	12/09/2010	Document provided by SDAPCD as an attachment to Exhibit 1B in response to applicant's request for information about nearby sources	SDAPCD District-wide Inventory of NO_X and PM10 sources > 5 TPY
1D	New Apps Query	12/09/2010	Document provided by SDAPCD as an attachment to Exhibit 1B in response to applicant's request for information about nearby sources	SDAPCD list of recently permitted sources in zip codes near PPEC
1E	Memo R DeSiena to A Carbonell	04/23/2003	Document provided by SDAPCD as an attachment to Exhibit 1B in response to applicant's request for information about nearby sources	SDAPCD summary of Air Quality Impact Analysis for Otay Mesa Generating Co.

Technical Area: Air Quality

Data Request AQ-64: Please tabulate the foreseeable projects that were considered for cumulative impacts modeling and state the rationale for exclusion or inclusion of each (for example, distance, emission threshold, etc.).

Response: All of the sources listed in Exhibits 1B and 1C were considered for inclusion in the cumulative impacts modeling analysis. The basis for including existing sources was the possibility that the existing source could significantly affect pollutant concentrations in the Project's impact area in a way that was not reflected by the ambient monitoring data. The basis for including new sources was the possibility that the new source could significantly affect pollutant concentrations in the Project's impact area. The determinations for existing and new sources are further discussed below.

Existing sources

The list of existing sources provided to the Applicant by the District was previously provided in response to Data Request 11 as Exhibit 1C. This document is the District's list of all sources in the District's emission inventory with NO_X or PM_{10} emissions greater than 5 TPY. As indicated to CEC staff in previous communications,[1] District emission inventories are generally based on usage information (fuel use, production, etc.) provided by the permit holder, and emission factors. Emission factors are usually based on permit limits or standard (conservative) factors. In some cases they are based on source testing. We do not know how the District determined the inventory values for these specific facilities.

Many of the sources listed in Exhibit 1C are more than 6 miles away from the project site. CEC regulations only require sources within a 6-mile radius of the project site to be included in a cumulative impacts analysis (CCR Title 20, Division 2,

[1] Email S Hill to T Jiang, 8/1/2011.

Chapter 3, Article 5, Appendix B (g) (8) (I) (iii). Therefore, sources over 6 miles away from the project site were excluded from the cumulative impacts analysis.

Emissions of CO, SO_2, PM_{10}, and VOC were not considered for modeling. VOC was excluded because there are no agency-recommended models or procedures for quantifying cumulative localized ozone impacts. CO, SO_2, and PM_{10} were excluded because the project does not result in a significant impact for these pollutants anywhere, and therefore cannot contribute to a cumulative localized impact.

Emissions of NO_2 and $PM_{2.5}$ were modeled from all of the sources in Exhibit 1C that are within 6 miles of the project site except for particulate emissions from Hanson Aggregates, an aggregate production facility located 4.3 miles away. Additionally, emissions from Otay Mesa Generating Station and the CalPeak Border facility were modeled, even though they are not listed in Exhibit 1C.

Hanson Aggregates is an aggregate plant located 4.3 miles west of the Project. The District inventory indicates that PM_{10} emissions from this facility are 47.1 TPY. Emissions of $PM_{2.5}$ from materials handling facilities are much lower than PM_{10} emissions. Based on similar facilities, $PM_{2.5}$ emissions from Hanson would be approximately 20 percent of the PM_{10} emissions, or less than 10 TPY. Using the modeling conducted for PPEC's construction impacts as a basis, significant impacts from Hanson would not be expected to extend beyond 1.5 miles.[2] Hanson Aggregates was therefore excluded from the cumulative impact analysis on this basis.

Otay Mesa and Calpeak Border were included in the cumulative impact analysis because they are both large sources

[2] PPEC peak daily construction $PM_{2.5}$ emissions = 7.37 lb/day = 1.35 TPY. At a distance of 1.5 miles, modeled PPEC construction $PM_{2.5}$ impacts are less than 0.13 $\mu g/m^3$. Based on this, the impact of a similarly-configured 10 TPY source would be expected to be less than 1.0 $\mu g/m^3$ at a distance of 1.5 miles. The dust-producing activities at Hanson would be modeled as area sources, in a way similar to the modeling for PPEC construction activities. Applicant has proposed using the PSD SIL of 1.2 $\mu g/m^3$ as the threshold for a single project's contribution to a significant cumulative local impact for $PM_{2.5}$.

within six miles of the Project with emission characteristics and operating schedules that are similar to those of the Project. As a result, there is a substantial likelihood that they could operate under peak loads at the same time as the Project, and thus contribute to cumulative localized impacts. The District did not have inventory data from these facilities when it prepared Exhibit 1C. Emission estimates used by the Applicant in the cumulative impacts analysis were based on permit limits described in documents provided by the District (see Exhibits 2A and 2D).

NO_X emissions from Larkspur were also included in the cumulative modeling analysis, although not listed in Exhibit 1C ($PM_{2.5}$ emissions from Larkspur were included in the analysis because they were listed in Exhibit 1C). Emission estimates were based on permit limits described in documents provided by the District (see Exhibit 2C).

Reasonably foreseeable sources

The list of newly permitted sources provided by the District was previously provided in response to Data Request 11 as Exhibit 1D. Many of those sources are more than 6 miles away from the project site, and were excluded on that basis.

The remaining sources, and the reasons for excluding them, are listed in Table DR-64.1.

- VOC-only sources were excluded because there are no agency-recommended models or procedures for quantifying cumulative localized ozone impacts.
- Emergency standby engines were excluded because they operate only intermittently, under emergency conditions, and fewer than 50 hours per year for testing purposes. Staff has concurred in the exclusion of these sources in previous proceedings.[3]
- Small sources: Emissions less than 5 TPY.

[3] See, for example, Staff Report for the Lodi Energy Center (November 2009), p. 4.1-34.

TABLE DR 64.1
NEW PROJECTS WITHIN 6 MILES OF PPEC

District Permit	Source Description	Reason for Excluding
979038	Concrete block manufacturing plant	Emissions < 5 TPY and < 10 lb/day
979477	Two (2) Bleeker Bros. Model F-12-7-10,10'l x 12'w x 6'10"h, paint spray booth	VOC source only
980002	Concrete batch plant, dry, transit mixed	Emissions < 5 TPY and < 10 lb/day
981018	Balance Phase I & II vapor recovery	VOC source only
981189	Gasoline service site	VOC source only
981204	Solvent cleaning process line: solvent cleaning <5 sq ft followed by drying operation	VOC source only
981205	Solvent cleaning process line: solvent cleaning >5 sq ft followed by drying operation	VOC source only
981206	Solvent application oper: detachment of rubber sealers from metal parts	VOC source only
981207	Solvent application oper: detachment of rubber sealers from metal parts	VOC source only
981208	Solvent application oper: detachment of rubber sealers from metal parts	VOC source only
981324	Application station hvlp spray gun Accuspray Series 10	VOC source only
981326	Degreaser Model PL36-A SN ICR90-B4	VOC source only
981327	Degreaser Model PL36-A SN ICGF7	VOC source only
981328	Degreaser Model PL36-A SN ICGF7	VOC source only
981329	Degreaser Model PL36-A SN IATT7	VOC source only
981330	Degreaser Model PL36A SN ICR90-B4	VOC source only
981531	Recycle crushing plant Model 62040 SN 1181	Emissions < 5 TPY
981556	Automotive application station	VOC source only
981629	Concrete batch plant PO 980222 from portable to stationary	Emissions < 5 TPY and < 10 lb/day
981873	Gasoline service site	VOC source only
981912	Central mixed concrete batch plant and silos; REX Model 120DRP528	Emissions < 5 TPY and < 10 lb/day
982042	Sand and aggregate bagging unit	Emissions < 5 TPY and < 10 lb/day

District Permit	Source Description	Reason for Excluding
983376	IC engine, Caterpillar, S/N GZS00307, Model 3516B, DIESEL, 2847 HP	Emergency standby engine
983720	Tarpaulin fumigation using methyl bromide	VOC source only
984040	I/C engine - Caterpillar Model C-18 DITA; S/N WJH00262, 630 HP, diesel	Emergency standby engine
984176	Gasoline dispensing facility	VOC source only
984293	Self serve gasoline dispensing facility. 10,000 gallon AST. Aviation fuel only	VOC source only
984435	IC engine General Model 0046267; S/N 4356149, 80HP, natural gas.	Emergency standby engine
985175	Olympian diesel engine Model D60P2 S/N GABL001576 HP rating 98.4	Emergency standby engine
985516	IC engine Clarke/John Deere Model JU4H-UF40, S/N PE4045T652489, 94HP diesel	Emergency standby engine
986927	John Deere diesel engine Model 6068HF285K S/N PE66068L039363 HP rating 197	Emergency standby engine
987548	Replacement emergency standby diesel 30K W engine for PO #983068	Emergency standby engine

TABLE DR 64.2
LIST OF EXHIBITS ATTACHED TO RESPONSE TO DATA REQUEST 64

Exhibit	Title	Date	Source of Exhibit	Description
2A	Calpeak Border TITLEVPERMIT976502DRIII	Provided by District on 6/3/11	Document provided by SDAPCD as an attachment to Exhibit 2M in response to applicant's request for stack parameters and emissions for modeling	Draft Title V permit containing emission limits for Calpeak Border
2B	Larkspur 1 and 2	Provided by District on 6/3/11	Document provided by SDAPCD as an attachment to Exhibit 2M in response to applicant's request for stack parameters and emissions for modeling	HARP input screen showing stack parameters for Larkspur 1 and 2
2C	Larkspur TITLEVPERMIT976138DRII	Provided by District on 6/3/11	Document provided by SDAPCD as an attachment to Exhibit 2M in response to applicant's request for stack parameters and emissions for modeling	Draft Title V permit containing emission limits for Larkspur 1 and 2
2D	OTAY AMENDMENT 2 2003	4/23/2003	Document provided by SDAPCD as an attachment to Exhibit 2M in response to applicant's request for stack parameters and emissions for modeling	Summary of Air Quality Impact assessment for Otay Mesa Generating Station, containing emission limits

Technical Area: Air Quality

Data Request AQ-65: The modeling protocol of AFC Appendix G-8 describes excluding from the cumulative impacts analysis those sources of less than 5 tons per year. Please provide a citation for selecting this level or explain how this level was derived and why a more-stringent threshold of 10 lb/day from District Rule 20.3(d) need not be used.

Response: Cumulative impacts are defined as "two or more individual effects which, when considered together, are considerable or…compound or increase other environmental impacts."[4] The cumulative impact analysis modeling is performed as part of an "analysis of the project's localized cumulative impacts, the project's direct operating emissions combined with other local *major* emissions sources"[5] [emphasis added]. The purpose of the analysis is to ensure that the analysis evaluates incremental, individually minor changes to the environment and addresses any significant localized cumulative impact.

In the background section for Data Requests 63–65, staff indicated that "*staff focused on new stationary sources that could emit over 10 pounds per day of any nonattainment pollutant*" when evaluating cumulative localized impacts for Lodi and Humboldt.

In the case of Humboldt, no sources over 10 pounds per day were identified or modeled.

In the case of Lodi, only two non-project sources with emissions over 10 pounds per day were identified: an emergency standby engine (not modeled because it is an emergency standby engine), and the existing STIG plant (modeled, but emissions were much greater than 5 TPY).

[4] CEQA Guidelines Sec. 15355.
[5] Staff Report, Carlsbad Energy Center Project (07-AFC-6), November 2009. P. 4.1-45.

In neither case did the use of a 10 pound per day threshold result in inclusion of a source that would have been excluded under a 5 TPY threshold.

Five tons per year has been used as a screening threshold for many CEC projects. In the recently issued (November 2009) Carlsbad certification, for example, CEC staff justified the 5 TPY threshold on the basis of the CEC staff's determination that a non-project source with "emissions less than 5 ton.year of any criteria pollutant and so would not have a significant potential to create significant cumulative impacts."[6] In contrast with the Carlsbad FSA, no justification was provided in either the Humboldt FSA nor the Lodi FSA for the 10 pound per day threshold.

CEC's determination in the Carlsbad case was based on many years of regulatory review. None of the staff assessments published since the Carlsbad FSA have identified a source smaller than 5 TPY that has contributed to a cumulative localized impact that did not already exist without considering that source. Including sources smaller than 5 TPY does not provide any additional protection under CEQA, but adds to the complexity and expense of the cumulative impact analysis.

Examining SDAPCD Rules for examples of appropriate thresholds for including sources in cumulative impact dispersion modeling, Rule 20(d)(2) is the obvious choice. This District requirement explicitly imposes modeling requirements, and is designed to address direct impacts from sources seeking permits. The Rule sets the threshold for modeling direct impacts of particulate matter (PM_{10}) at 100 lb/day, or 15 tons per year. The threshold for NO_X is 250 lb/day or 40 TPY. The threshold of 5 TPY used by the applicant, based on many years of CEC precedent, is much more conservative.

Rule 20.3(d)(1), in contrast, requires Best Available Control Technology for any source with maximum daily emissions of 10 lb/day of any nonattainment pollutant or its precursor. The

[6] Staff Report, Carlsbad Energy Center Project (07-AFC-6), November 2009.

purpose of this requirement is to ensure that emissions from new sources are minimized in order to achieve and maintain regional attainment standards. The threshold is not related in any way to the potential for the source to have direct, localized impacts, and is therefore not an appropriate basis for this purpose.

In summary, for this Project, existing sources with annual emissions below 5 TPY were excluded from the cumulative impact analysis, based on past determinations that sources below this threshold do not have a significant potential to create significant cumulative impacts. Existing sources above 5 TPY within a six mile radius were evaluated to determine whether they have a potential to contribute, along with the project, to localized cumulative impacts. Four existing facilities were identified and included in the modeling, most significantly the adjacent Otay Mesa Generating Station.

All new permits within six miles of the project site were also identified and considered for inclusion in the cumulative impact modeling. Emergency standby engines were excluded because they operate only intermittently, under emergency conditions, and fewer than 50 hours per year for testing purposes. VOC-only sources were excluded because VOC emissions are not modeled.

Six concrete batch plant permits within six miles of the project site were identified but excluded from modeling because their emissions were less than 5 TPY each.

BACKGROUND: CUMULATIVE MODELING PROTOCOL

Response to Data Request 13 describes cumulative impacts of NO_2, PM_{10}, and $PM_{2.5}$, but other criteria pollutants, CO and SO_2, are not addressed. In addition, the impacts were only assessed at receptors where PPEC project-alone impacts were found to be over the federal Significant Impact Level (SIL), which does not provide a complete analysis as needed for the Staff Assessment. Cumulative impacts should address all criteria pollutants and all nearby receptors. The federal Significant Impact Level is a tool for screening in the federal permitting process (Prevention of Significant Deterioration or PSD). Normally the Energy Commission Staff Assessment discloses cumulative impacts of all pollutants not just those over the SIL. Staff's determination of significance under CEQA is not dependent on a comparison of impacts with the PSD SIL.

Technical Area: Air Quality

Data Request AQ-66: Please provide a cumulative impact analysis in sufficient detail to describe and tabulate the cumulative air quality impacts for CO and SO_2.

Response: Cumulative impacts are conservatively calculated in Table 5.2-28 of the AFC. The calculation is conservative because the cumulative impact is determined by adding the highest ambient concentration measured during the three-year data period to the highest modeled concentration during the same three-year period. No effort has been made to determine whether high project impacts are even possible under the meteorological conditions that result in high background concentrations. This screening approach is routinely accepted as an approved method of demonstrating compliance by the agencies that developed, interpret, and enforce these standards. It has also been used by CEC to assess localized cumulative impacts. Table 5.2-28 (as revised on 3/8/2011) is reproduced below. Table DR-66.1 shows that maximum modeled project CO and SO_2 impacts will be less than 3 percent of the most stringent ambient air quality standard. Maximum total project impacts (maximum modeled impact plus background) will only be about 26 percent of the strictest applicable standard.

As shown in Table DR-66.1, even under worst case conditions, CO and SO_2 impacts from the proposed project will be well below the most stringent ambient air quality standards. No source with emissions large enough to create an impact that would threaten the standards exists in the project area. Even if there were a high impact caused by one or more other sources, the project does not contribute to a cumulative impact if the project does not provide a substantial contribution to the determined high impact area.[7] In the federal regulatory process, a project impact below the SIL means that the project does not result in a substantial contribution to whatever cumulative impact may exist. Applicant proposes to use the same definitions for CEQA purposes.

[7] "It is not truly a cumulative impact of the (Carlsbad Energy Center Project) CECP if the high impact area is the result of high fence line concentrations from another stationary source and CECP is not providing a substantial contribution to the determined high impact area." Staff Report, Carlsbad Energy Center Project, November 2009, p. 4.1-49.

TABLE 5.2-28
SUMMARY OF RESULTS (MODELED MAXIMUM IMPACTS PLUS BACKGROUND) (REVISED 3/8/2011)

Pollutant	Averaging Time	Maximum Predicted Impact (operating mode) (µg/m^3)	Background Concentration (µg/m^3)	Total Concentration (Maximum Impact plus Background) (µg/m^3)	3 year Average of 98th Percentile of Total Concentration (µg/m^3)	NAAQS (µg/m^3)	CAAQS (µg/m^3)
NO_2	1-hr	100111 (startup)	154	254,265	156,159	188	339
	Annual	0.3 (normal)	32	32	--	100	57
SO_2	1-hr	6 (normal)	45	51	--	196	655
	3-hr	3 (normal)	34	37	--	1,300	--
	24-hr	1 (normal)	10	11	--	--	105
	Annual	<0.1 (normal)	8	8	--	80	--
CO	1-hr	202222 (shutdown)	4	206,226	--	40,000	23,000
	8-hr	3952 (shutdown)	2	4154	--	10,000	20.000
PM_{10}	24-hr	3 (normal)	57	60	--	150	50
	Annual	0.3 (normal)	26.7	30	--	--	20
$PM_{2.5}$	24-hr	2.6 (normal)	45.7	--	25.825.9	35	--
	Annual	0.26 (normal)	12.5	12.8	--	15.0	12

TABLE DR 66.1
MARGINS OF COMPLIANCE WITH CO AND SO_2 STANDARDS

Pollutant	Averaging Time	Maximum Predicted Impact (µg/m³)	Background Concentration (µg/m³)	Total Concentration (Maximum Impact plus Background) (µg/m³)	NAAQS (µg/m³)	CAAQS (µg/m³)	Max Predicted Impact as % of Most Stringent Standard	Total Concentration as % of Most Stringent Standard
SO_2	1-hr	6	45	51	196	655	3%	26%
	3-hr	3	34	37	1,300	--	0.2%	3%
	24-hr	1	10	11	--	105	1%	11%
	Annual	<0.1	8	8	80	--	0.1%	10%
CO	1-hr	222	4	226	40,000	23,000	1%	1%
	8-hr	52	2	54	10,000	20.000	0.5%	0.5%

Technical Area: Air Quality

Data Request AQ-67: Please include all receptors within the project impact area in the cumulative modeling of all pollutants.

Response: A project may result in a significant adverse cumulative impact where its effects are cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects (CCR 2006, §15065[A][3]).

The project impact area is defined by the area where the project's incremental contribution to direct localized impacts is not so low that they cannot be significant when viewed in connection with the effects other projects. For direct impacts of criteria pollutants, the boundary of the impact area is defined by the line where the project's impact is significant, i.e., where the project's impact exceeds the SIL. In the context of PSD, a project impact below the SIL means that the project does not "cause or contribute to" any violation of the ambient air quality standard. In the context of CEQA, a project impact below the significance threshold (proposed in this application to be equal to the SIL) means that the project's impact outside this area is so insubstantial that it does not contribute to cumulative direct impacts. CEC Regulations implicitly incorporate the PSD significance threshold as the standard for a project's incremental contribution to cumulative impact: "The cumulative inert pollutant impact analysis should assess whether estimated emissions concentrations will cause or contribute to a violation of any ambient air quality standard." (CCR Title 20, Division 2, Chapter 3, Article 5, Appendix B (g) (8) (I) (iii)).

The project impact area for each pollutant is therefore different. Because there are no areas where project CO or SO_2 impacts are above the significant impact levels, there is no area where

the project can contribute to localized cumulative impacts, and there is no project impact area for these pollutants.

The previously submitted modeling includes all receptors within the project impact area in the cumulative modeling of all pollutants. Outside of this area, the "cumulative impact" of the project plus background is not distinguishable from the impact of the background alone, and therefore the project cannot contribute significantly to a cumulative air quality impact.

BACKGROUND: CUMULATIVE MODELING PROTOCOL

Reviewing the dispersion modeling files provided on July 27, 2011 (CD-ROM) reveals certain analytical assumptions or settings that are not well-documented. Cumulative modeling of Otay Mesa Generating Power Plant and Pacific Recovery facilities uses non default in-stack NO_2/NO_X ratios for determining 1-hour NO_2. The Otay Mesa Generating Power Plant combustion turbines are modeled with an NO_2/NO_X ratio of 0.05, and four landfill gas-fired engines at Pacific Recovery are modeled with an NO_2/NO_X ratio of 0.75. These factors are contrary to a default NO_2/NO_X ratio of 0.1. Other questions involve sources selected for cumulative impacts analysis. Cumulative modeling does not include the auxiliary boiler at Otay Mesa Generating Power Plant. For Pacific Recovery at the Otay Landfill, four sources (engines) are modeled, each with different emission rates for a total of 44.7 tons per year NO_X. However, Response to Data Request 11, Exhibit 1C shows an additional facility of 20.7 tons per year NO_X at the Otay Landfill. The Energy Commission's Database of California Power Plants (available at: http://energyalmanac.ca.gov/powerplants/index.html) shows two landfill gas-to-energy engines at the Otay Landfill, but response to Data Request 13 shows four.

Technical Area: Air Quality

Data Request AQ-68: Please provide a citation for the NO_2/NO_X ratios used in the analysis of the Pacific Recovery and Otay Mesa Generating Power Plant sources or explain how the NO_2/NO_X ratios were derived. Rerun the modeling as necessary if the applicant revises the NO_2/NO_X ratio or makes any other significant revisions to input or analysis data.

Response: The Pacific Recovery NO_2/NO_X ratio of 75 percent was taken from source test data for the facility. The data were provided by the District to be used for this analysis (see Exhibit 2K). Over four test runs, average NO_2/NO_X ratios ranged from 55 percent to 75 percent, while maximum NO_2/NO_X ranged from 68 percent to 78 percent. For the cumulative impact analysis, the applicant selected the most conservative average value to characterize this source.

The Otay Mesa NO_2/NO_X ratio of 5 percent was taken from source test data for the Otay Mesa facility. The data were

provided by the District to be used for this analysis (See Exhibit 2L). The NO_2/NO_X ratio ranged from 4 percent to 6 percent with the duct burners, and 4–7 percent without duct burners. For the cumulative impact analysis, the applicant selected a round number within the range.

The applicant has not revised any NO_2/NO_X ratios or made any other significant revisions to input or analysis data as a result of this data request. As a result, no new modeling has been performed.

TABLE DR 68.1
LIST OF EXHIBITS ATTACHED TO RESPONSE TO DATA REQUEST 68

Exhibit	Title	Date	Source of Exhibit	Description
2K	Pacific Recovery NO_2 to NO_X	Provided by District on 6/3/11	Document provided by SDAPCD as an attachment to Exhibit 2M in response to applicant's request for stack parameters and emissions for modeling	Source test data for Pacific Recovery engines showing NO_2 to NO_X ratios
2L	Turbine NO_2 to NO_X	Provided by District on 6/3/11	Document provided by SDAPCD as an attachment to Exhibit 2M in response to applicant's request for stack parameters and emissions for modeling	Source test data for turbines showing NO_2 to NO_X ratios

Technical Area: Air Quality

Data Request AQ-69: Please describe how the auxiliary boiler at the Otay Mesa Generating Power Plant would operate and whether operation of the boiler could be simultaneous to other sources operating at Otay Mesa.

Response: According to the SDAPCD, the Otay Mesa auxiliary boiler may be operated while 1 turbine is operating in peak mode, and the other turbine is in startup mode.[8]

[8] Memo R DeSiena to A Carbonel (Exhibit 1E), (4/23/2003).

Technical Area: Air Quality

Data Request AQ-70: Please include the Otay Mesa auxiliary boiler as part of cumulative modeling.

Response: The cumulative impact modeling for short-term impacts is based on worst-case emissions of the project sources, and peak normal operations of the non-project source. It is standard practice when modeling cumulative impacts to base emissions from non-project sources on peak normal operations.[9] Startup emissions from non-project sources are not included in the cumulative impact analysis for the same reason that emergency engine emissions are not included: the frequency and duration of such events at the non-project sources, as well as the frequency and duration of simultaneous shutdown of all three turbines (the worst case) at the project, make it very unlikely that these events will occur simultaneously, under precisely the conditions that result in worst-case dispersion. Because the scenario is not reasonably foreseeable, it is an unrealistic case to model.

Because the Otay Mesa auxiliary boiler has zero emissions during peak normal operation it has not been included in the cumulative modeling.

The cumulative impact modeling for annual impacts is based on maximum permitted annual operating emissions for both the project and Otay Mesa's turbines. The annual emissions from the auxiliary boiler were not included. However, the auxiliary boiler's emissions are small (0.96 lb/hour for NO_X, 1.65 lb/hour for PM_{10})[10], and the number of startups is small (10 cold and 40 warm start-ups per turbine).[11] Because the auxiliary boiler emissions are relatively small, and because there are no locations where the Project could potentially

[9] For example: "The modeling assumed worst-case short-term emissions for the CECP (cold startup) and assumed full load emissions for the existing Encina Power Station boiler units 4 and 5 and peaking turbine," FSA for Carlsbad p. 4.1-50.
[10] Exhibit 1E.
[11] FSA for Otay Mesa Generating Project (October 27, 2000) , p. 22.

contribute to a significant localized cumulative impact for annual emissions, the exclusion of the auxiliary boiler from the cumulative impact modeling is reasonable.

Technical Area: Air Quality

Data Request AQ-71: Please clarify which sources at the Otay Landfill are included in the cumulative modeling by providing a brief description of each source that illustrates why different and varied stack parameters were used and how the emission rates were derived.

Response: There are four engines at the Otay Landfill that were included in the Applicant's cumulative impacts analysis: District Permit Number 40247 is comprised of two 2650 Bhp Cooper Superior Lean Burn Engines (Engine 1 and Engine 2), and District Permit Number 979979 is comprised of two 2650 Bhp Cooper Superior Lean Burn Engines (Engine 3 and Engine 4).

Emission rates for all four engines were taken from the SDAPCD 2009 Approved Inventory Report (Exhibits 2G-2J). This report shows individual engine emissions in units of lb/hr These hourly emissions were converted to g/s for modeling.

The stack parameters used in the cumulative modeling for these sources were provided by the District in response to our request for data that would allow us to model source impacts (Exhibit 2M). Different stack parameters were used for the four engines because different stack parameters were provided by the District. Stack parameters for Engines 1 and 2 are taken from HARP input screens, supplied by the District, for a cancer risk assessment that was performed in 1999, prior to construction of the second pair of engines (Exhibit 2E). Stack parameters for Engines 3 and 4 are taken from HARP input screens, supplied by the District, for an Air Quality Impact analysis performed in 2004 during initial permit review for the new engine (Exhibit 2F).

TABLE DR 71.1
LIST OF EXHIBITS ATTACHED TO RESPONSE TO DATA REQUEST 71

Exhibit	Title	Date	Source of Exhibit	Description
2E	Pacific Recovery 1999	1999	Document provided by SDAPCD as an attachment to Exhibit 2M in response to applicant's request for stack parameters and emissions for modeling	HARP input screen showing stack parameters for Pacific Recovery engines 1 and 2
2F	Pacific Recovery 2004	7/19/2004	Document provided by SDAPCD as an attachment to Exhibit 2M in response to applicant's request for stack parameters and emissions for modeling	Air Quality Impact Analysis for Otay Landfill engines 3 and 4, including HARP input screen showing stack parameters
2G	Pacific Recovery Eng 1 1310_001	2009	Document provided by SDAPCD as an attachment to Exhibit 2M in response to applicant's request for stack parameters and emissions for modeling	Device/Materials Emission Report for Pacific Recovery Engine 1, showing emission rates
2H	Pacific Recovery Eng 2 1311_001	2009	Document provided by SDAPCD as an attachment to Exhibit 2M in response to applicant's request for stack parameters and emissions for modeling	Device/Materials Emission Report for Pacific Recovery Engine 2, showing emission rates
2I	Pacific Recovery Eng 3 1312_001	2009	Document provided by SDAPCD as an attachment to Exhibit 2M in response to applicant's request for stack parameters and emissions for modeling	Device/Materials Emission Report for Pacific Recovery Engine 3, showing emission rates
2J	Pacific Recovery Eng 4 1313_001	2009	Document provided by SDAPCD as an attachment to Exhibit 2M in response to applicant's request for stack parameters and emissions for modeling	Device/Materials Emission Report for Pacific Recovery Engine 4, showing emission rates
2M	Email_S_Moore_to_ S_Hill_06-03-11	6/3/11	Email from SDAPCD	Transmittal memo for emissions data and stack parameters for cumulative impact modeling

ATTACHMENT 1
REVISIONS TO CONSTRUCTION IMPACT ANALYSIS

The following revisions make corrections for three separate issues in the initial AFC submittal. These corrections only affect construction emissions and impacts. No changes have been made to, or are required for, the analysis for commissioning or normal operations.

Correction of Average Equipment Counts

The applicant has determined that Table G-2.15 as submitted in the AFC contains incorrect information about the number of units per day, averaged over the construction period, and the 12-month average fuel use.[1] The revised Table G-2.15 with the correct values is attached. This correction does not affect any of the conclusions in the AFC, nor does it affect the modeling, because those are based on either the peak 12-month average (for annual impacts), or the peak daily emissions (for shorter averaging times), not the average over the entire construction period.

Correction of Total Fuel Use

The applicant has also determined that the amount of diesel fuel used by off-road construction equipment reported in Table G-2.6 is incorrect. The correct value is shown in the revised Tables G-2.15 and 5.2-24 (below). This correction affects the quantity of GHG emissions associated with construction activities. The revised construction-related GHG emission is 1,026 $MTCO_2eq$. The headings in Tables G-2.6 and 5.2-24 have been revised to clarify that reported emissions are the total emissions for the entire construction period. This correction does not affect any of the conclusions in the AFC because GHG emissions from construction activities are included in the AFC for informational purposes, and no conclusions in the AFC rely upon this quantity.

Correction of Determination of Maximum Monthly Combustion Emissions During Construction

The applicant has determined that monthly fuel consumption rates were not properly adjusted for capacity factor in the table used to identify the construction month with the highest fuel consumption. As a result, month 8 was incorrectly identified as the month with the highest fuel consumption, when in fact the fuel consumption in month 5 is 10% higher.

New dispersion modeling has been performed to determine short-term NO_2 and SO_2 impacts. Because of differences between emission factors for equipment affected by this correction, emissions of the other criteria pollutants in month 5 are actually lower. As a

[1] Average number of units per day is calculated by summing the number of units onsite during each month of the construction period and dividing by the total number of months in the construction period. For PPEC, the construction period will be 16 months. In the AFC table, the averages were incorrectly calculated using 36 months instead of 16.

result, no changes have been made to maximum impacts for CO or PM. Annual average impacts are based on annual emissions and were not affected.

This correction does not affect the conclusions presented in the health risk assessment. Cancer impacts from diesel particulate matter emitted by construction equipment are not affected because the calculated impacts are based on annual emissions of particulate matter, which were not affected.

This correction affects the tables listed below; revised tables are attached.

5.2-14 Maximum Daily Construction Emissions
5.2-25 Modeled Maximum Impacts During Construction
G-2.1 Maximum Daily Emissions During Construction, Pounds Per Day
G-2.3 Modeled Maximum Impacts During Construction
G-2.4 Daily Construction Emissions (peak month) (lbs/day)
G-2.11 Onsite Combustion Emissions
G-2.14 Construction Equipment Daily Fuel Use (peak period)
G-2.19 Combustion Emission Ranking
P-1.8 Maximum Modeled Construction Impacts

Table G-2.18 is a duplicate of Table G-2.11, and has been deleted. In addition, typographical errors in Tables 5.2-15 and G-2.2 have been corrected.

5.2 AIR QUALITY

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5.2.4 Environmental Consequences

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5.2.4.1 Construction Emissions

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The short-term maximum emissions were calculated using Month 5~~8~~ for construction equipment and month 2 for fugitive dust. Activities in month 5~~8~~ include grading, building and facility construction. Activities in month 2 are primarily grading and other site preparation activities. Annual emissions were based on the worst 12 consecutive months of the construction period, which were Months 1-12 of the 16-month schedule for combustion emissions, and Months 2-13 for fugitive dust.

Maximum daily construction emissions are shown in Table 5.2-14. Maximum annual construction emissions are shown in Table 5.2-15. Modeled impacts are shown in Table 5.2-25~~17~~.

TABLE 5.2-14 (REVISED 8/5/11)
MAXIMUM DAILY CONSTRUCTION EMISSIONS, POUNDS PER DAY
MONTH 5~~8~~ (COMBUSTION)
MONTH 2 (FUGITIVE DUST)

	NOx	CO	VOC	SOx	PM_{10}	$PM_{2.5}$
Onsite						
Construction Equipment	44.8 ~~40.7~~	19.9 ~~24.3~~	4.0 ~~4.1~~	0.1 ~~0.0~~	1.5 ~~1.6~~	1.5 ~~1.6~~
Fugitive Dust	--	--	--	--	19.7	2.9
Offsite						
Worker Travel, Truck Deliveries	11.2	63.8	6.3	0.1	0.1	0.1
Total	56.0 ~~51.9~~	83.6 ~~88.1~~	10.3 ~~10.4~~	0.1	21.3 ~~21.4~~	4.5 ~~4.6~~

Notes:
PM_{10} = particulate matter less than 10 micrometers in diameter
$PM_{2.5}$ = particulate matter less than 2.5 micrometers in diameter
VOC = volatile organic compound
CO = carbon monoxide
NOx = nitrogen oxide(s)
SOx = sulfur oxide(s)

TABLE 5.2-15 (REVISED 8/5/11)
MAXIMUM ANNUAL CONSTRUCTION EMISSIONS, TONS PER YEAR

	NOx	CO	VOC	SOx	$PM_{2.5}$	PM_{10}
Onsite						
Construction Equipment	4.7	2.3	0.4	0.0	0.2	0.2
Fugitive Dust	--	--	--	--	0.3 ~~2.5~~	1.6 ~~0.6~~
Offsite						
Worker Travel, Truck Deliveries	0.8	2.6	0.3	0.0	0.0	0.0
Total	5.5	4.9	0.7	0.0	0.5	1.9

Notes:
PM_{10} = particulate matter less than 10 micrometers in diameter
$PM_{2.5}$ = particulate matter less than 2.5 micrometers in diameter
VOC = volatile organic compound
CO = carbon monoxide
NOx = nitrogen oxides
SOx = sulfur oxides

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5.2.4.6 Greenhouse Gas Emissions

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TABLE 5.2-24 (REVISED 8/5/11)
CONSTRUCTION GREENHOUSE GAS EMISSIONS (PROJECT TOTAL)

Unit	CO_2, metric tons~~/year~~	CH_4, metric tons~~/year~~	N_2O, metric tons~~/year~~	CO_2eq, metric tons~~/yr~~[1]
Offroad Fuel Use	635~~78~~	2.61E-02 ~~3.19E-03~~	5.22E-03 ~~6.38E-04~~	
Worker Travel	307	1.30E-02	2.60E-03	
Truck Deliveries	81	3.34E-03	6.68E-04	
TOTAL	1,023~~466~~	4.24E-02 ~~1.95E-02~~	8.49E-03 ~~3.91E-03~~	1,026~~467~~

5.2.4.13 Construction Impacts

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TABLE 5.2-25 (REVISED 8/5/11)
MODELED MAXIMUM IMPACTS DURING CONSTRUCTION

Pollutant	Averaging Period	Maximum Predicted Impact (µg/m³)	Maximum Background Concentration (µg/m³)	Total Concentration[1] (µg/m³)	NAAQS (µg/m³)	CAAQS (µg/m³)
NO_2	1-hr	87~~79~~	154	241~~233~~	188	339
	Annual	6	32	38	100	57
SO_2	1-hr	0	45	45	196	655
	3-hr	0	34	34	1300	--
	24-hr	0	10	10	--	105
	Annual	0	8	8	80	--
CO	1-hr	63	4	67	40,000	23,000
	8-hr	34	2	36	10,000	20.000
PM_{10}	24-hr	21	57	78	150	50
	Annual	2.7	26.7	29.4	--	20
$PM_{2.5}$	24-hr	4.6	45.7	50.3	35	--
	Annual	0.2	12.5	12.7	15.0	12

[1] The total concentration shown in this table is the sum of the maximum predicted impact and the maximum measured background concentration. Because the maximum impact will not occur at the same time as the maximum background concentration, the actual maximum combined impact will be lower.

APPENDIX G-2

Construction Emissions and Impact Analysis

APPENDIX G-2

…

Analysis of Ambient Impacts from Onsite Construction

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Dispersion Model

The EPA guideline model AERMOD was used to estimate ambient impacts from construction activities.

Worst-case modeling was conducted for short-term averaging times using all combustion emissions from all construction equipment from Month ~~8~~ 5 and dust emissions from activities in Month 2 (see Table G-2.4). Annual emissions were modeled for Months 2-13 of the construction schedule (See Table G-2.5). These periods were selected because they have a higher level of construction activity and exhaust and dust emissions than any other over the full 16 months of construction.

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Table G-2.1

Maximum Daily Emissions During Construction, Pounds Per Day (Revised 8/5/11)

Month 5~~8~~ (combustion)

Month 2 (dust)

	NOx	CO	VOC	SOx	PM_{10}	$PM_{2.5}$
Onsite						
Construction Equipment	44.8 ~~40.7~~	19.9 ~~24.3~~	4.0 ~~4.1~~	0.1 ~~0.0~~	1.5 ~~1.6~~	1.5 ~~1.6~~
Fugitive Dust	--	--	--	--	19.7	2.9
Offsite						
Worker Travel, Truck Deliveries	11.2	63.8	6.3	0.1	0.1	0.1
Total Emissions						
Total	56.0 ~~51.9~~	83.6 ~~88.1~~	10.3 ~~10.4~~	0.1	21.3 ~~21.4~~	4.5 ~~4.6~~

Table G-2.2

Peak Annual Emissions During Project Construction, Tons Per Year (Revised 8/5/11)

	NOx	CO	VOC	SOx	PM_{10}	$PM_{2.5}$
Onsite						
Construction Equipment	4.7	2.3	0.4	0.0	0.2	0.2
Fugitive Dust	--	--	--	--	1.6 ~~2.5~~	0.3 ~~0.6~~
Offsite						
Worker Travel, Truck Deliveries	0.8	2.6	0.3	0.0	0.0	0.0
Total Emissions						
Total	5.5	4.9	0.7	0.0	1.9~~0.5~~	0.5~~1.9~~

Table G-2.3
Modeled Maximum Impacts During Construction (Revised 8/5/11)

Pollutant	Averaging Period	Maximum Predicted Impact ($\mu g/m^3$)	Maximum Background Concentration ($\mu g/m^3$)	Total Concentration[1] ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)	CAAQS ($\mu g/m^3$)
NO_2	1-hr	87~~79~~	154	241~~233~~[2]	188	339
	Annual	6	32	38	100	57
SO_2	1-hr	0	45	45	196	655
	3-hr	0	34	34	1300	--
	24-hr	0	10	10	--	105
	Annual	0	8	8	80	--
CO	1-hr	63	4	67	40,000	23,000
	8-hr	34	2	36	10,000	20.000
PM_{10}	24-hr	21	57	78	150	50
	Annual	2.7	26.7	29.4	--	20
$PM_{2.5}$	24-hr	4.6	45.7	50.3	35	--
	Annual	0,2	12.5	12.7	15.0	12

Notes:

1. The federal 1-hour NO_2, 24-hour $PM_{2.5}$, and 1-hr SO_2 standards are based on 3-year averages of 98th percentile values, not on maximum values.

2. Construction is expected to last only 16 months; construction impacts would be much lower during the second year and zero during the third year. Because the federal one-hour NO_2 standard requires averaging the concentrations over three years, the NO_2 impacts during the single year of construction would not be likely to cause a new violation of the federal one-hour NO_2 standard.

Table G-2.4
Daily Construction Emissions (peak month) (lbs/day) (Revised 8/5/11)

Month ~~8~~ 5 (combustion)
Month 2 (fugitive dust)

	NOx	CO	VOC	SOx	PM2.5	PM10
Onsite						
Construction Equipment	44.5~~40.7~~	19.9~~24.3~~	4.0~~4.1~~	0.1~~0.0~~	1.5~~1.6~~	1.5~~1.6~~
Fugitive Dust					2.9	19.7
Subtotal =	44.5~~40.7~~	19.9~~24.3~~	4.0~~4.1~~	0.1~~0.0~~	4.4~~4.6~~	21.2~~21.3~~
Offsite						
Worker Travel (combustion)	6.1	61.2	5.8	0.1	0.1	0.1
Truck Deliveries (combustion)	5.1	2.5	0.4	0.0	0.0	0.0
Dust from travel on dirt roads					0.0	0.0
Subtotal =	11.2	63.8	6.3	0.1	0.1	0.1
Total =	56.0~~51.9~~	83.6~~88.1~~	10.3~~10.4~~	0.1	4.5~~4.6~~	21.3~~21.4~~

Table G-2.6

Greenhouse Gas Emissions Calculations: Project Construction (Revised 8/5/11)

Unit	Fuel	Fuel Use, gal~~/yr~~	~~Maximum~~ Total Construction Emissions, metric tons~~nes/yr~~			
			CO_2	CH_4	N_2O	SF_6
Offroad Fuel Use	Diesel	62,606 ~~7,661~~	636~~78~~	2.61E-02 ~~3.19E-03~~	5.22E-03 ~~6.38E-04~~	0.00
Worker Travel	Gasoline	34,864	307	1.30E-02	2.60E-03	0.00
Truck Deliveries	Diesel	8,020	81	3.34E-03	6.68E-04	0.00
Total	--	105,490 ~~50,545~~	1,023 ~~466~~	4.24E-02 ~~1.95E-02~~	8.49E-03 ~~3.91E-03~~	0
CO2eq			1,023 ~~466~~	1 ~~0~~	3 ~~1~~	0

TOTAL 1,026~~467~~

Natural Gas GHG Emission Rates (Note 1)

	Emission Factors, kg/gal			
	CO_2 (2)	CH_4	N_2O	SF_6
Diesel	10.140	4.17E-04	8.33E-05	n/a
Gasoline	8.800	3.73E-04	7.45E-05	
Global Warming Potential (4)	1	21	310	23,900

g/MMBTU		MMBtu/gal
CH_4 (3)	N_2O (3)	
3.00E+00	6.00E-01	1.39E-01
3.00E+00	6.00E-01	1.24E-01

Notes:

1. Calculation methods and emission factors from ARB, "Regulation for the Mandatory Reporting of Greenhouse Gas Emissions," December 2007
2. Appendix A, Table 3.
3. Appendix A, Table 6.
4. Appendix A, Table 2.

Table G-2.11

Onsite Combustion Emissions (Revised 7/28/11)

							Total Dail	Daily					Total Annual	Annual				
	Adjusted factors lbs/1000 gallon (4)						Fuel Use(5)	Emissions Lbs/day					Fuel Use(6)	Emissions Lbs/yr				
							(Gals/day)						(Gals/yr)					
Equipment	Tier	NOx	CO	VOC	SOx	PM10		NOx	CO	VOC	SOx	PM10		NOx	CO	VOC	SOx	PM10
Hydro Crane 35-50 Ton RT	2	170.60	31.88	13.16	0.21	1.95	12.30	2.10	0.39	0.16	0.00	0.02	2,165	369.38	69.03	28.49	0.45	4.22
RT 760 - 60 ton Crane	2	184.89	35.93	7.12	0.21	1.95	30.76	5.69	1.11	0.22	0.01	0.06	6,090	1125.92	218.82	43.35	1.27	11.88
Hydro Crane 75-80 Ton RT	2	184.89	35.93	7.12	0.21	1.95	0.00	0.00	0.00	0.00	0.00	0.00	1,353	250.20	48.63	9.63	0.28	2.64
2250 Manitowoc 300 Ton (track mounted crane)	2	184.89	35.93	7.12	0.21	1.95	25.83	4.78	0.93	0.18	0.01	0.05	3,410	630.52	122.54	24.27	0.71	6.65
40' - 60' Manlift	2	168.09	197.65	27.34	0.21	11.71	~~41.50~~	~~6.98~~	~~8.20~~	~~1.13~~	~~0.01~~	~~0.49~~	4,565	767.29	902.25	124.80	0.95	53.45
							13.83	2.33	2.73	0.38	0.00	0.16						
90' Manlift	2	168.09	197.65	27.34	0.21	11.71	~~27.67~~	~~4.65~~	~~5.47~~	~~0.76~~	~~0.01~~	~~0.32~~	2,739	460.38	541.35	74.88	0.57	32.07
							9.22	1.55	1.82	0.25	0.00	0.11						
Forklift	2	169.60	137.47	14.65	0.21	7.55	9.75	1.65	1.34	0.14	0.00	0.07	1,931	327.43	265.41	28.27	0.40	14.58
Diesel Welder 400 Amp	2	160.21	125.59	17.47	0.21	8.79	~~6.90~~	~~1.10~~	~~0.87~~	~~0.12~~	~~0.00~~	~~0.06~~	1,315	210.63	165.11	22.97	0.27	11.55
							4.60	0.74	0.58	0.08	0.00	0.04						
185 CFM Compressor	2	170.61	89.05	11.12	0.21	12.17	10.81	1.84	0.96	0.12	0.00	0.13	2,734	466.47	243.48	30.41	0.57	33.28
Light Tower 5 KW	2	160.21	125.59	17.47	0.21	8.79	9.58	1.53	1.20	0.17	0.00	0.08	2,388	382.55	299.87	41.71	0.50	20.99
Water Truck 4000 Gal	Onroad	173.70	86.54	15.22	0.21	7.61	7.83	1.36	0.68	0.12	0.00	0.06	2,066	358.83	178.77	31.44	0.43	15.72
Track 330 Excavator	2	164.48	56.00	15.00	0.21	5.69	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	2,478	407.56	138.75	37.18	0.51	14.09
							22.53	3.71	1.26	0.34	0.00	0.13						
RT Hoe 710 (Backhoe)	2	163.01	80.51	28.01	0.21	9.15	~~11.85~~	~~1.93~~	~~0.95~~	~~0.33~~	~~0.00~~	~~0.11~~	3,910	637.35	314.78	109.51	0.81	35.79
							23.70	3.86	1.91	0.66	0.00	0.22						
Roller	2	164.48	56.00	15.00	0.21	5.69	12.61	2.07	0.71	0.19	0.00	0.07	3,051	501.84	170.85	45.78	0.63	17.35
950/960 Loader	2	160.47	48.29	13.68	0.21	3.17	~~31.43~~	~~5.04~~	~~1.52~~	~~0.43~~	~~0.01~~	~~0.10~~	10,371	1664.26	500.89	141.87	2.16	32.91
							62.86	10.09	3.04	0.86	0.01	0.20						
Cat D6 Dozer	2	164.48	56.00	15.00	0.21	5.69	0.00	0.00	0.00	0.00	0.00	0.00	2,240	368.38	125.41	33.61	0.47	12.74
Dump Truck	Onroad	173.70	86.54	15.22	0.21	7.61	0.00	0.00	0.00	0.00	0.00	0.00	475	82.53	41.12	7.23	0.10	3.62
Grader	2	160.47	48.29	13.68	0.21	3.17	0.00	0.00	0.00	0.00	0.00	0.00	1,479	237.38	71.44	20.24	0.31	4.69
Fusion Machine	2	160.21	125.59	17.47	0.21	8.79	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	1,264	202.53	158.76	22.08	0.26	11.11
							9.58	1.53	1.20	0.17	0.00	0.08						
Asphalt Paver	2	160.47	48.29	13.68	0.21	3.17	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00
Paving Equipment	2	160.47	48.29	13.68	0.21	3.17	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00

(1) - Steady State Emission Factors from Table A4 of EPA July 2010 NR-009d Publication.

(2) - In use adjustment factors per Table A5 EPA July 2010 NR-009d Publication.

(3) - PM10 and SO2 adjustments due to Equation 3 and Equation 5 on pages 6 and 23, Respectively of EPA Report No. NR-009d

(4) - Calculation uses adjusted BSFC and assumed 7.1 lbs/gallon. The onroad emission factors are not adjusted.

(5) - Daily fuel use based on peak combustion month equipment schedule.

(6) - Annual fuel use based on average level during peak 12-month period.

Table G-2.14

Construction Equipment Daily Fuel Use (peak period) (Revised 8/5/11)

Month 5~~8~~

Equipment	Number of Units	Hrs/Day Per Unit	Gals/Hr Per Unit	Total Fuel Use (Gals/day)
Hydro Crane 35-50 Ton RT	1	3.4	3.6	12.3
RT 760 - 60 ton Crane	2	3.4	4.5	30.8
Hydro Crane 75-80 Ton RT	0	3.4	4.5	0.0
2250 Manitowoc 300 Ton (track mounted crane)	1	3.4	7.6	25.8
40' - 60' Manlift	3~~9~~	4	1.2	13.8~~41.5~~
90' Manlift	2~~6~~	4	1.2	9.2~~27.7~~
Forklift	2	2.4	2.0	9.8
Diesel Welder 400 Amp	2~~3~~	3.6	0.6	4.6~~6.9~~
185 CFM Compressor	2	3.8	1.4	10.8
Light Tower 5 KW	3	5	0.6	9.6
Water Truck 4000 Gal	1	5	1.6	7.8
Track 330 Excavator	1~~0~~	4.6	4.9	22.5~~0.0~~
RT Hoe 710 (Backhoe)	2~~1~~	3.7	3.2	23.7~~11.8~~
Roller	1	4.6	2.7	12.6
950/960 Loader	2~~1~~	4.3	7.3	62.9~~31.4~~
Cat D6 Dozer	0	5.2	6.5	0.0
Dump Truck	0	4.6	1.6	0.0
Grader	0	4.6	3.7	0.0
Fusion Machine	3~~0~~	5	0.6	9.6~~0.0~~
Asphalt Paver	0	4.7	2.2	0.0
Paving Equipment	0	4.7	2.2	0.0

Total = 265.8~~238.8~~

Table G-2.15

Construction Equipment Annual Fuel Use (Peak 12-month construction period) (Revised 8/5/11)

Equipment	Average number of units per day: Total Construction Period	Average number of units per day: Peak Construction Year	Average Operating Hrs/Day Per Unit	Gals/Hr Per Unit	Average Operating Days per Year	12-Month Average Total Fuel Use (Gals/yr)	Peak 12-Month Average Total Fuel Use (Gals/yr)
Hydro Crane 35-50 Ton RT	0.50~~0.22~~	0.67	3.40	3.6	264	1,624~~722~~	2,165
RT 760 - 60 ton Crane	1.13~~0.50~~	1.50	3.40	4.5	264	4,567~~2,030~~	6,090
Hydro Crane 75-80 Ton RT	0.50~~0.22~~	0.33	3.40	4.5	264	2,030~~902~~	1,353
2250 Manitowoc 300 Ton (track mounted crane)	0.38~~0.17~~	0.50	3.40	7.6	264	2,558~~1,137~~	3,410
40' - 60' Manlift	2.81~~1.25~~	3.75	4.00	1.2	264	3,424~~1,522~~	4,565
90' Manlift	1.69~~0.75~~	2.25	4.00	1.2	264	2,054~~913~~	2,739
Forklift	1.38~~0.61~~	1.50	2.40	2.0	264	1,770~~787~~	1,931
Diesel Welder 400 Amp	2.00~~0.89~~	2.17	3.60	0.6	264	1,214~~539~~	1,315
185 CFM Compressor	1.50~~0.67~~	1.92	3.80	1.4	264	2,140~~951~~	2,734
Light Tower 5 KW	2.38~~1.06~~	2.83	5.00	0.6	264	2,001~~890~~	2,388
Water Truck 4000 Gal	1.00~~0.44~~	1.00	5.00	1.6	264	2,066~~918~~	2,066
Track 330 Excavator	0.31~~0.14~~	0.42	4.60	4.9	264	1,858~~826~~	2,478
RT Hoe 710 (Backhoe)	0.94~~0.42~~	1.25	3.70	3.2	264	2,932~~1,303~~	3,910
Roller	0.88~~0.39~~	0.92	4.60	2.7	264	2,912~~1,294~~	3,051
950/960 Loader	1.06~~0.47~~	1.25	4.30	7.3	264	8,816~~3,918~~	10,371
Cat D6 Dozer	0.19~~0.08~~	0.25	5.20	6.5	264	1,680~~747~~	2,240
Dump Truck	0.19~~0.08~~	0.25	4.60	1.6	264	356~~158~~	475
Grader	0.38~~0.17~~	0.33	4.60	3.7	264	1,664~~740~~	1,479
Fusion Machine	1.13~~0.50~~	1.50	5.00	0.6	264	948~~421~~	1,264
Asphalt Paver	0.06~~0.03~~	0.00	4.70	2.2	264	170~~76~~	0
Paving Equipment	0.06~~0.03~~	0.00	4.70	2.2	264	170~~76~~	0
Total =						46,954~~20,869~~	54,760

~~Table G-2.18~~
~~Adjusted Emission Factors~~

							Total Daily Fuel Use(5) (Gals/day)	Daily Emissions Lbs/day					Total Annual Fuel Use(6) (Gals/yr)	Annual Emissions Lbs/yr	
	Adjusted factors lbs/1000 gallon (4)														
Equipment	Tier	NOx	CO	VOC	SOx	PM10		NOx	CO	VOC	SOx	PM10		NOx	CO
Hydro Crane 35-50 Ton RT	2	170.60	31.88	13.16	0.21	1.95	12.30	2.10	0.39	0.16	0.00	0.02	2,165	369.38	69.03
RT 760 - 60 ton Crane	2	184.89	35.93	7.12	0.21	1.95	30.76	5.69	1.11	0.22	0.01	0.06	6,090	1125.92	218.82
Hydro Crane 75-80 Ton RT	2	184.89	35.93	7.12	0.21	1.95	0.00	0.00	0.00	0.00	0.00	0.00	1,353	250.20	48.63
2250 Manitowoc 300 Ton (track mounted crane)	2	184.89	35.93	7.12	0.21	1.95	25.83	4.78	0.93	0.18	0.01	0.05	3,410	630.52	122.54
40' - 60' Manlift	2	168.09	197.65	27.34	0.21	11.71	41.50	6.98	8.20	1.13	0.01	0.49	4,565	767.29	902.25
90' Manlift	2	168.09	197.65	27.34	0.21	11.71	27.67	4.65	5.47	0.76	0.01	0.32	2,739	460.38	541.35
Forklift	2	169.60	137.47	14.65	0.21	7.55	9.75	1.65	1.34	0.14	0.00	0.07	1,931	327.43	265.41
Diesel Welder 400 Amp	2	160.21	125.59	17.47	0.21	8.79	6.90	1.10	0.87	0.12	0.00	0.06	1,315	210.63	165.11
185 CFM Compressor	2	170.61	89.05	11.12	0.21	12.17	10.81	1.84	0.96	0.12	0.00	0.13	2,734	466.47	243.48
Light Tower 5 KW	2	160.21	125.59	17.47	0.21	8.79	9.58	1.53	1.20	0.17	0.00	0.08	2,388	382.55	299.87
Water Truck 4000 Gal	Onroad	173.70	86.54	15.22	0.21	7.61	7.83	1.36	0.68	0.12	0.00	0.06	2,066	358.83	178.77
Track 330 Excavator	2	164.48	56.00	15.00	0.21	5.69	0.00	0.00	0.00	0.00	0.00	0.00	2,478	407.56	138.75
RT Hoe 710 (Backhoe)	2	163.01	80.51	28.01	0.21	9.15	11.85	1.93	0.95	0.33	0.00	0.11	3,910	637.35	314.78
Roller	2	164.48	56.00	15.00	0.21	5.69	12.61	2.07	0.71	0.19	0.00	0.07	3,051	501.84	170.85
950/960 Loader	2	160.47	48.29	13.68	0.21	3.17	31.43	5.04	1.52	0.43	0.01	0.10	10,371	1664.26	500.89
Cat D6 Dozer	2	164.48	56.00	15.00	0.21	5.69	0.00	0.00	0.00	0.00	0.00	0.00	2,240	368.38	125.41
Dump Truck	Onroad	173.70	86.54	15.22	0.21	7.61	0.00	0.00	0.00	0.00	0.00	0.00	475	82.53	41.12
Grader	2	160.47	48.29	13.68	0.21	3.17	0.00	0.00	0.00	0.00	0.00	0.00	1,479	237.38	71.44
Fusion Machine	2	160.21	125.59	17.47	0.21	8.79	0.00	0.00	0.00	0.00	0.00	0.00	1,264	202.53	158.76
Asphalt Paver	2	160.47	48.29	13.68	0.21	3.17	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00
Paving Equipment	2	160.47	48.29	13.68	0.21	3.17	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00

~~(1) - Steady State Emission Factors from Table A4 of EPA July 2010 NR-009d Publication.~~

~~(2) - In use adjustment factors per Table A5 EPA July 2010 NR-009d Publication.~~
~~(3) - PM10 and SO2 adjustments due to Equation 3 and Equation 5 on pages 6 and 23, Respectively of EPA Report No. NR-009d~~

~~(4) - Calculation uses adjusted BSFC and assumed 7.1 lbs/gallon. The onroad emission factors are not adjusted.~~

~~(5) - Daily fuel use based on peak combustion month equipment schedule.~~

~~(6) - Annual fuel use based on average level during peak 12-month period.~~

Table G-2.19
Combustion Emission Ranking (Revised 8/5/11)

Combustion Emission Ranking Equipment	Hrs/Day Per Unit (1)	Gals/Hr Per Unit	Month															
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hydro Crane 35-50 Ton RT	3.4	3.6	0	0	0	0	12	12	12	**12**	12	12	12	12	0	0	0	0
RT 760 - 60 ton Crane	3.4	4.5~~12.9~~	0	15~~44~~	15~~44~~	15~~44~~	31~~88~~	31~~88~~	31~~88~~	**31~~88~~**	31~~88~~	31~~88~~	31~~88~~	15~~44~~	0	0	0	0
Hydro Crane 75-80 Ton RT	3.4	4.5~~12.9~~	0	0	0	0	0	0	0	**0**	15~~44~~	15~~44~~	15~~44~~	15~~44~~	15~~44~~	15~~44~~	15~~44~~	15~~44~~
2250 Manitowoc 300 Ton (track mounted crane)	3.4	7.6~~21.7~~	0	0	0	0	26~~74~~	26~~74~~	26~~74~~	**26~~74~~**	26~~74~~	26~~74~~	0	0	0	0	0	0
40' - 60' Manlift	4	1.2~~5.8~~	0	0	0	0	14~~69~~	23~~11~~ 5	37~~18~~ 4	**41~~20~~ 7**	37~~18~~ 4	28~~13~~ 8	18~~92~~	9~~46~~	0	0	0	0
90' Manlift	4	1.2~~5.8~~	0	0	0	0	9~~46~~	14~~69~~	18~~92~~	**28~~13~~ 8**	18~~92~~	18~~92~~	9~~46~~	9~~46~~	0	0	0	0
Forklift	2.4	2.0~~5.8~~	5~~14~~	5~~14~~	5~~14~~	5~~14~~	10~~28~~	10~~28~~	10~~28~~	**10~~28~~**	10~~28~~	10~~28~~	5~~14~~	5~~14~~	5~~14~~	5~~14~~	5~~14~~	5~~14~~
Diesel Welder 400 Amp	3.6	0.6~~1.3~~	0	5~~9~~	5~~9~~	5~~9~~	5~~9~~	5~~9~~	5~~9~~	**7~~14~~**	7~~14~~	7~~14~~	7~~14~~	5~~9~~	5~~9~~	5~~9~~	2~~5~~	2~~5~~
185 CFM Compressor	3.8	1.4~~2.8~~	11~~22~~	11~~22~~	11~~22~~	11~~22~~	11~~22~~	11~~22~~	11~~22~~	**11~~22~~**	11~~22~~	11~~22~~	11~~22~~	5~~11~~	5~~11~~	0	0	0
Light Tower 5 KW	5	0.6~~1.3~~	6~~13~~	10~~19~~	10~~19~~	10~~19~~	10~~19~~	10~~19~~	10~~19~~	**10~~19~~**	10~~19~~	10~~19~~	10~~19~~	6~~13~~	3~~6~~	3~~6~~	3~~6~~	3~~6~~
Water Truck 4000 Gal	5	1.6~~3.1~~	8~~16~~	8~~16~~	8~~16~~	8~~16~~	8~~16~~	8~~16~~	8~~16~~	**8~~16~~**	8~~16~~	8~~16~~	8~~16~~	8~~16~~	8~~16~~	8~~16~~	8~~16~~	8~~16~~
Track 330 Excavator	4.6	4.9~~14.0~~	23~~64~~	23~~64~~	23~~64~~	23~~64~~	23~~64~~	0	0	**0**	0	0	0	0	0	0	0	0
RT Hoe 710 (Backhoe)	3.7	3.2~~9.1~~	0	24~~68~~	24~~68~~	24~~68~~	24~~68~~	12~~34~~	12~~34~~	**12~~34~~**	12~~34~~	12~~34~~	12~~34~~	12~~34~~	0	0	0	0
Roller	4.6	2.7~~7.8~~	0	13~~36~~	13~~36~~	13~~36~~	13~~36~~	13~~36~~	13~~36~~	**13~~36~~**	13~~36~~	13~~36~~	13~~36~~	13~~36~~	13~~36~~	13~~36~~	0	13~~36~~
950/960 Loader	4.3	7.3~~14.6~~	0	63~~12~~ 6	63~~12~~ 6	63~~12~~ 6	63~~12~~ 6	31~~63~~	31~~63~~	**31~~63~~**	31~~63~~	31~~63~~	31~~63~~	31~~63~~	31~~63~~	31~~63~~	0	0
Cat D6 Dozer	5.2	6.5~~13.1~~	34~~68~~	34~~68~~	34~~68~~	0	0	0	0	**0**	0	0	0	0	0	0	0	0
Dump Truck	4.6	1.6~~3.1~~	7~~14~~	7~~14~~	7~~14~~	0	0	0	0	**0**	0	0	0	0	0	0	0	0
Grader	4.6	3.7~~10.4~~	17~~48~~	17~~48~~	17~~48~~	0	0	0	0	**0**	0	0	0	17~~48~~	17~~48~~	17~~48~~	0	0
Fusion Machine	5	0.6~~1.3~~	10~~19~~	10~~19~~	10~~19~~	10~~19~~	10~~19~~	10~~19~~	0	**0**	0	0	0	0	0	0	0	0
Asphalt Paver	4.7	2.2~~6.3~~	0	0	0	0	0	0	0	**0**	0	0	0	0	0	0	0	10~~29~~
Paving Equipment	4.7	2.2~~6.3~~	0	0	0	0	0	0	0	**0**	0	0	0	0	0	0	0	10~~29~~
		Total =	120 ~~278~~	242 ~~567~~	242 ~~567~~	184 ~~436~~	266 ~~696~~	214 ~~604~~	223 ~~677~~	**239 ~~751~~**	240 ~~725~~	231 ~~679~~	182 ~~499~~	163 ~~436~~	102 ~~247~~	97 ~~236~~	34~~84~~	67 ~~179~~
		12-month Total =												2547 ~~6914~~	2529 ~~6883~~	2383 ~~6552~~	2174 ~~6070~~	2057 ~~5813~~

APPENDIX P-1

Risk Assessment Tables

Table P-1.8
MAXIMUM MODELED CONSTRUCTION IMPACTS (Revised 8/5/11)

	Impact, µg/m^3		
Pollutant	**2006**	**2007**	**2008**
Total NOX 1 Hr (Without Ozone limiting), Maximum	116.1 ~~91.9~~	116.1 ~~105.5~~	107.1 ~~97.3~~
Total NOX 1 Hr (PVMRM), Maximum	86.5 ~~78.6~~	80.0 ~~74.4~~	82.9 ~~75.3~~
CO 1 Hr	54.9	63.0	58.1
SO2 1 Hr	0.1	0.1	0.1
SO 3 Hr	0.1	0.1	0.1
CO 8 Hr	33.9	28.9	31.0
SO 24 Hr	0.0	0.0	0.0
PM25 24 Hr, max	3.8	4.6	3.6
PM10 24 Hr	21.3	21.4	20.2
NOx Annual	5.8	5.7	5.5
SO2 Annual	0.0	0.0	0.0
PM2.5 Annual	0.685	0.678	0.665
PM10 Annual	2.718	2.685	2.596
Combustion PM2.5 Annual	0.208	0.205	0.196
Combustion PM10 Annual	0.209	0.206	0.197

Exhibit 2A

COUNTY OF SAN DIEGO, AIR POLLUTION CONTROL DISTRICT
10124 OLD GROVE RD, SAN DIEGO, CA 92131
(858) 586-2600 FAX (858) 586-2601

CONTROL NO.
XXXXXXX

PERMIT NO.
976502
EXPIRES
MARCH 1, 201X

PERMIT TO OPERATE

THE FOLLOWING IS HEREBY GRANTED A PERMIT TO OPERATE THE ARTICLE, MACHINE, EQUIPMENT OR CONTRIVANCE DESCRIBED BELOW. THIS PERMIT IS NOT TRANSFERABLE TO A NEW OWNER NOR IS IT VALID FOR OPERATION OF THE EQUIPMENT AT ANOTHER LOCATION, EXCEPT FOR PORTABLE EQUIPMENT. RULE 10C REQUIRES THIS PERMIT TO OPERATE OR COPY BE POSTED ON OR WITHIN 25 FEET OF THE EQUIPMENT, OR MAINTAINED READILY AVAILABLE AT ALL TIMES ON THE OPERATING PREMISES. THIS AIR POLLUTION CONTROL DISTRICT PERMIT DOES NOT RELIEVE THE HOLDER FROM OBTAINING PERMITS OR AUTHORIZATION REQUIRED BY OTHER GOVERNMENTAL AGENCIES.

PERMITTEE
CALPEAK POWER BORDER LLC
JASON BOWMAN
7365 MISSION GORGE RD BLDG B #C
SAN DIEGO CA 92120-1274

EQUIPMENT ADDRESS
2060 SANYO AV
SAN DIEGO CA 92154-6230

EQUIPMENT DESCRIPTION
GAS TURBINE (49.5 MW): PRATT & WHITNEY, MODEL FT-8 (DLN), TWIN-PAC (TWO SIMPLE CYCLE GAS TURBINES WITH COMMON GENERATOR AND EXHAUST), 500 MMBTU/HR TOTAL HEAT INPUT, NATURAL GAS FIRED, WITH EXHAUST AIR COOLING, A PEERLESS MANUFACTURING COMPANY SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM WITH A HALDOR CATALYST, AN ENGELHARD OXIDATION CATALYST SYSTEM, A CONTINUOUS EMISSION MONITORING SYSTEM (CEMS), AND CONTINUOUS PARAMETRIC MONITORS.

EVERY PERSON WHO OWNS OR OPERATES THIS EQUIPMENT IS REQUIRED TO COMPLY WITH THE CONDITIONS LISTED BELOW AND ALL APPLICABLE REQUIREMENTS AND DISTRICT RULES, INCLUDING BUT NOT LIMITED TO RULES 50 AND 51.
FAILURE TO OPERATE IN COMPLIANCE IS A MISDEMEANOR AND IS SUBJECT TO CIVIL AND CRIMINAL PENALTIES.

A. FEDERALLY-ENFORCEABLE AND DISTRICT-ENFORCEABLE CONDITIONS

ADMINISTRATIVE

1. THE PERMITTEE SHALL COMPLY WITH THE FOLLOWING APPLICABLE REQUIREMENTS: 40 CFR PARTS 60, 72, AND 73.
[RULE 1421]

2. PROVIDED THE EQUIPMENT SUBJECT TO THIS PERMIT IS OPERATED IN COMPLIANCE WITH ALL OF THE SECTION (A) CONDITIONS LISTED BELOW AS THEY EXIST ON THE DATE OF ISSUANCE OF THE PERMIT, A PERMIT SHIELD IS GRANTED FROM ENFORCEMENT ACTION FOR THE FOLLOWING APPLICABLE REQUIREMENTS: RULE 53, RULE 62, RULE 68, RULE 69.3, 40 CFR PART 60 SUBPART GG, AND 40 CFR PART 75.
[RULE 1421]

3. THE PERMITTEE SHALL COMPLY WITH ALL THE APPLICABLE PROVISIONS OF 40 CFR73, INCLUDING REQUIREMENTS TO OFFSET, HOLD AND RETIRE SO2 ALLOWANCES
[40 CFR PART 73]

4. ANY VIOLATION OF ANY EMISSION STANDARD AS INDICATED BY THE CEMS SHALL BE REPORTED TO THE DISTRICT WITHIN 96 HOURS AFTER SUCH OCCURRENCE.
[CA HEALTH AND SAFETY CODE]

5. IN THE EVENT OF A BREAKDOWN IN AN AUTOMATIC AMMONIA INJECTION CONTROL SYSTEM, A TRAINED OPERATOR SHALL OPERATE THE SYSTEM MANUALLY AND THE BREAKDOWN SHALL BE REPORTED TO THE DISTRICT COMPLIANCE DIVISION PURSUANT TO RULE 98.
[RULE 98]

PERMIT TO OPERATE

6. AN APPLICATION FOR MODIFICATION OF DISTRICT PERMITS FOR THIS EQUIPMENT SHALL BE REQUIRED FOR ANY PROPOSED PHYSICAL OR OPERATIONAL MODIFICATION TO THE EQUIPMENT DESCRIBED HEREIN, SUCH AS A MODIFICATION TO CONVERT THIS SIMPLE CYCLE TURBINE TO COMBINED CYCLE UNIT. APPLICABLE BACT REQUIREMENTS FOR THE PROPOSED EQUIPMENT MODIFICATION SHALL BE RE-EVALUATED AT THAT TIME. [RULE 10]

EMISSION LIMITS/OPERATIONAL LIMITS

FUEL:

7. THE UNIT SHALL BE FIRED ON PUBLIC UTILITY COMMISSION (PUC) QUALITY NATURAL GAS ONLY. THE PERMITTEE SHALL MAINTAIN QUARTERLY RECORDS FO SULFUR CONTENT (GRAINS/100 DSCF) AND HIGHER AND LOWER HEATING VALUES (BTU/DSCF) OF THE NATURAL GAS AND PROVIDE SUCH RECORDS TO DISTRICT PERSONNEL UPON REQUEST. [RULE 62]

STARTUP/SHUTDOWN:

8. FOR THE PURPOSES OF THIS PERMIT TO OPERATE, STARTUP PERIOD SHALL BE DEFINED AS THE 30 MINUTE TIME PERIOD STARTING WHEN FUEL FLOW BEGINS. SHUTDOWN PERIOD SHALL BE DEFINED AS THE 30-MINUTE PERIOD PRECEDING THE MOMENT AT WHICH FUEL FLOW CEASES. THE DATA ACQUISITION AND HANDLING SYSTEM (DAHS), AS REQUIRED BY 40 CFR PART 75, SHALL RECORD THESE EVENTS. [RULE 69.3.1]

OXIDES OF NITROGEN:

9. THE EMISSIONS OF OXIDES OF NITROGEN (NOX), CALCULATED AS NITROGEN DIOXIDE, FROM THE UNIT EXHAUST STACK SHALL NOT EXCEED 9 PARTS PER MILLION VOLUEM ON A DRY BASIS (PPMVD) CORRECTED TO 15% OXYGEN AND AVERAGED OVER EACH CLOCK HOUR AND SHALL NOT EXCEED 3.5 PPMVD CORRECTED TO 15% OXYGEN AND AVERAGED OVER EACH ROLLING 3-HOUR PERIOD. COMPLIANCE WITH THESE LIMITS SHALL BE DEMONSTRATED CONTINUOUSLY BASED ON CEMS DATA AND BASED UPON SOURCE TESTING CALCULATED AS THE AVERAGE OF THREE SUBTESTS. THESE LIMITS SHALL NOT APPLY DURING STARTUP AND SHUTDOWN CONDITIONS. [RULE 69.3.1, RULE 69.3, NSR]

10. EMISSIONS OF OXIDES OF NITROGEN (NOX) SHALL NOT EXCEED 7.2 POUNDS PER HOUR AVERAGED OVER EACH ROLLING 3-HOUR PERIOD. COMPLIANCE WITH THIS LIMIT SHALL BE DEMONSTRATED CONTINUOUSLY BASED ON CEMS DATA AND BASED ON SOURCE TESTING CALCULATED AS THE AVERAGE OF THREE SUBTESTS. THIS LIMIT SHALL NOT APPLY DURING STARTUP AND SHUTDOWN CONDITIONS. [NSR]

11. EMISSIONS OF OXIDES OF NITROGEN (NOX) SHALL NOT EXCEED 173 POUNDS IN ANY CALENDAR DAY NOR EXCEED 31.6 TONS IN ANY CALENDAR YEAR. COMPLIANCE WITH THIS LIMIT SHALL BE DEMONSTRATED BASED ON CEMS DATA. [NSR]

CARBON MONOXIDE:

12. EMISSIONS OF CARBON MONOXIDE (CO) FROM THE UNIT EXHAUST STACK SHALL NOT EXCEED 50 PARTS PER MILLION VOLUME ON A DRY BASIS (PPMVD) CORRECTED TO 15% OXYGEN AND AVERAGED OVER EACH ROLLING 3-HOUR PERIOD. COMPLIANCE WITH THIS LIMIT SHALL BE DEMONSTRATED CONTINUOUSLY BASED ON CEMS DATA AND BASED UPON SOURCE TESTING CALCULATED AS THE AVERAGE OF THREE SUBTESTS. THIS LIMIT SHALL NOT APPLY DURING STARTUP AND SHUTDOWN CONDITIONS. [NSR]

13. EMISSIONS OF CARBON MONOXIDE (CO) SHALL NOT EXCEED 22 POUNDS PER HOUR AVERAGED OVER EACH ROLLING 3-HOUR PERIOD. COMPLIANCE WITH THIS LIMIT SHALL

Permit Conditions Continued...

PERMIT TO OPERATE

BE DEMONSTRATED CONTINUOUSLY BASED ON CEMS DATA AND BASED ON SOURCE TESTING CALCULATED AS THE AVERAGE OF THREE SUBTESTS. THIS LIMIT SHALL NOT APPLY DURING STARTUP AND SHUTDOWN CONDITIONS.
[NSR]

14. EMISSIONS OF CARBON MONOXIDE (CO) SHALL NOT EXCEED 528 POUNDS IN ANY CALENDAR DAY NOR EXCEED 100 TONS IN ANY CALENDAR YEAR.COMPLIANCE WITH THIS LIMIT SHALL BE DEMONSTRATED BASED ON CEMS DATA.
[NSR]

VOLATILE ORGANIC COMPOUNDS:

15. EMISSIONS OF VOLATILE ORGANIC COMPOUNDS (VOCS), CALCULATED AS METHANE, FROM THE TWIN PAC EXHAUST STACK SHALL NOT EXCEED 2 PARTS PER MILLION VOLUME ON A DRY BASIS (PPMVD) CORRECTED TO 15% OXYGEN. COMPLIANCE WITH THIS LIMIT SHALL BE DEMONSTRATED ANNUALLY BASED ON SOURCE TESTING (AVERAGE OF THREE SUBTESTS). THIS LIMIT SHALL NOT APPLY DURING STARTUP AND SHUTDOWN CONDITIONS.
[NSR]

AMMONIA:

16. AMMONIA EMISSIONS FROM THE UNIT EXHAUST STACK SHALL NOT EXCEED 10 PARTS PER MILLION VOLUME ON A DRY BASIS (PPMVD) CORRECTED TO 15% OXYGEN. COMPLIANCE WITH THIS LIMIT SHALL BE DEMONSTRATED THROUGH SOURCE TESTING CALCULATED AS THE AVERAGE OF THREE SUBTESTS. THIS LIMIT SHALL NOT APPLY DURING STARTUP AND SHUTDOWN PERIODS.
[RULE 1200]

RECORDKEEPING/MONITORING

17. THE UNIT SHALL BE EQUIPPED WITH CONTINUOUS MONITORS TO MEASURE, CALCULATE AND RECORD THE FOLLOWING OPERATIONAL CHARACTERISTICS:
    (A) HOURS OF OPERATION (HOURS);
    (B) NATURAL GAS FLOW RATE (KSCFH);
    (C) SCR AVERAGE TEMPERATURE (DEGREES FAHRENHEIT);
    (D) AMMONIA INJECTION RATE;
    (E) NET POWER OUTPUT TO GRID (MW);
    (F) WATER (FOR NOX CONTROL) INJECTION RATE (LB/HR) IF EQUIPPED WITH WATER INJECTION.
    THESE PARAMETERS SHALL BE CONTINUOUSLY MONITORED. THESE MONITORS SHALL BE CALIBRATED AND MAINTAINED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDED PROCEDURES AND A PROTOCOL APPROVED BY THE DISTRICT.

18. FUEL, WATER INJECTION (FOR NOX CONTROL), AND AMMONIA FLOW METERS SHALL BE INSTALLED AND MAINTAINED TO MEASURE THE FLOW RATE CORRECTED FOR TEMPERATURE AND PRESSURE. CALIBRATION REPORTS, CORRECTION FACTORS AND CONSTANTS FOR THE PREVIOUS FIVE YEARS SHALL BE MAINTAINED ON SITE OR AT A DISTRICT-APPROVED ALTERNATE LOCATION AND MADE AVAILABLE TO THE DISTRICT WITHIN 48 HOURS AFTER REQUEST. FUEL FLOW METERS SHALL MEET THE APPLICABLE QUALITY ASSURANCE REQUIREMENTS OF 40 CFR PART 75, APPENDIX D, SECTION 2.1.6.
[NSR]

19. A CONTINUOUS EMISSION MONITORING SYSTEM (CEMS) SHALL BE INSTALLED AND PROPERLY MAINTAINED AND CALIBRATED IN ACCORDANCE WITH AN APPROVED CEMS PROTOCOL TO MEASURE, CALCULATE AND RECORD THE FOLLOWING, IN ACCORDANCE WITH THE APPROVED CEMS PROTOCOL:
    (A) HOURLY AVERAGE CONCENTRATION OF OXIDES OF NITROGEN (NOX) CORRECTED TO 15% OXYGEN, IN PARTS PER MILLION (PPM);
    (B) HOURLY AVERAGE CONCENTRATION OF CARBON MONOXIDE (CO) CORRECTED TO 15% OXYGEN, IN PARTS PER MILLION (PPM);

Permit Conditions Continued...

PERMIT TO OPERATE

(C) PERCENT OXYGEN (O2) IN THE EXHAUST GAS (%);
(D) AVERAGE CONCENTRATION OF OXIDES OF NITROGEN (NOX) CORRECTED TO 15% OXYGEN FOR EACH CONTINUOUS ROLLING 3-HOUR PERIOD, IN PARTS PER MILLION (PPM);
(E) HOURLY MASS EMISSIONS OF OXIDES OF NITROGEN (NOX), IN POUNDS;
(F) DAILY MASS EMISSIONS OF OXIDES OF NITROGEN (NOX), IN POUNDS;
(G) MONTHLY MASS EMISSIONS OF OXIDES OF NITROGEN (NOX), IN POUNDS;
(H) ANNUAL MASS EMISSIONS OF OXIDES OF NITROGEN (NOX), IN TONS;
(I) HOURLY MASS EMISSION OF CARBON MONOXIDE (CO), IN POUNDS;
(J) DAILY MASS EMISSION OF CARBON MONOXIDE (CO), IN POUNDS;
(K) MONTHLY MASS EMISSION OF CARBON MONOXIDE (CO), IN POUNDS; AND
(L) ANNUAL MASS EMISSION OF CARBON MONOXIDE (CO), IN TONS.
THE CEMS SHALL BE OPERATED IN ACCORDANCE WITH THE APPROVED CEMS MONITORING PROTOCOL AT ALL TIMES WHEN THE UNIT IS IN OPERATION. A COPY OF THE CEMS MONITORING PROTOCOL SHALL BE MAINTAINED ON SITE AND MADE AVAILABLE TO DISTRICT PERSONNEL UPON REQUEST.
[RULE 69.3.1, NSR]

20. A CONTINUOUS EMISSION MONITORING SYSTEM (CEMS) SHALL BE MAINTAINED AND CALIBRATED TO MEASURE AND RECORD THE CONCENTRATIONS OF OXIDES OF NITROGEN (NOX) AND CARBON MONOXIDE (CO) IN THE EXHAUST GAS ON A DRY BASIS (PPMVD), CORRECTED TO 15% OXYGEN, AND IN POUNDS PER HOUR. THE CEMS SHALL ALSO MEASURE THE OXYGEN CONTENT (O2) IN THE EXHAUST GAS. THE CEMS SHALL BE IN FULL OPERATION AT ALL TIMES WHEN THE UNIT IS IN OPERATION.
[RULE 69.3.1, 40 CFR PART 75, NSR]

21. ALL ROLLING AVERAGES SHALL ONLY INCLUDE VALUES TAKEN WHEN THE UNIT(S) ARE OPERATING.
[RULE 69.3.1, 40 CFR PART 75, NSR]

22. THE DISTRICT SHALL BE NOTIFIED AT LEAST TWO WEEKS PRIOR TO ANY CHANGES MADE IN CEMS SOFTWARE THAT AFFECT THE MEASUREMENT, CALCULATION OR CORRECTION OF DATA DISPLAYED AND/OR RECORDED BY THE CEMS.
[RULE 69.3.1, 40 CFR PART 75, NSR]

23. OPERATING LOG OR DATA ACQUISITION SYSTEM (DAS) RECORDS SHALL BE MAINTAINED EITHER ON SITE OR AT A DISTRICT-APPROVED ALTERNATE LOCATION TO RECORD ACTUAL TIMES AND DURATIONS OF ALL STARTUPS AND SHUTDOWNS, QUANTITY OF FUEL USED (MONTHLY AND ANNUAL), HOURS OF DAILY OPERATION, AND TOTAL CUMULATIVE HOURS OF OPERATION DURING EACH CALENDAR YEAR.
[RULE 69.3.1, NSR]

24. WHEN THE CEMS IS NOT RECORDING DATA AND THE UNIT IS OPERATING, HOURLY NOX EMISSIONS SHALL BE DETERMINED IN ACCORDANCE WITH 40 CFR 75 APPENDIX C. ADDITIONALLY, HOURLY CO EMISSIONS SHALL BE DETERMINED USING THE HOURLY EMISSION RATE RECORDED BY THE CEMS DURING THE MOST RECENT HOURS IN WHICH THE UNIT OPERATED 3 CONTINUOUS HOURS AT NO LESS THAN 80% OF FULL POWER RATING. ALTERNATE CO EMISSION FACTORS SHALL BE DETERMINED FROM COMPLIANCE SOURCE TEST EMISSIONS DATA. THE ALTERNATE HOURLY CO EMISSION RATE SHALL BE REVIEWED AND APPROVED BY THE DISTRICT, IN WRITING.
[NSR]

25. THE OXIDES OF NITROGEN (NOX) AND OXYGEN (O2) CEMS SHALL BE CERTIFIED AND MAINTAINED IN ACCORDANCE WITH APPLICABLE FEDERAL REGULATIONS INCLUDING THE REQUIREMENTS OF SECTIONS 75.10 AND 75.12 OF TITLE 40, CODE OF FEDERAL REGULATIONS PART 75 (40 CFR 75), THE PERFORMANCE SPECIFICATIONS OF APPENDIX A OF 40 CFR 75, THE QUALITY ASSURANCE PROCEDURES OF APPENDIX B OF 40 CFR 75 AND

Permit Conditions Continued...

PERMIT TO OPERATE

THE CEMS PROTOCOL APPROVED BY THE DISTRICT. THE CARBON MONOXIDE (CO) CEMS SHALL BE CERTIFIED AND MAINTAINED IN ACCORDANCE WITH 40 CFR 60 APPENDICES B AND F AND THE CEMS PROTOCOL APPROVED BY THE DISTRICT, UNLESS OTHERWISE SPECIFIED IN THIS PERMIT.
[RULE 69.3.1, 40 CFR PART 75]

26. THE AIR POLLUTION CONTROL SYSTEM INCLUDING THE WATER INJECTION SYSTEM, IF EQUIPPED WITH WATER INJECTION FOR NOX CONTROL AND THE AMMONIA INJECTION SYSTEM SERVING THE SCR, SHALL BE IN OPERATION IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS AT ALL TIMES WHEN THE UNIT IS IN OPERATION EXCEPT DURING STARTUPS AND SHUTDOWNS. ALL MANUFACTURER'S SPECIFICATIONS SHALL BE MAINTAINED ON SITE OR AT A DISTRICT-APPROVED ALTERNATE LOCATION AND MADE AVAILABLE TO DISTRICT PERSONNEL WITHIN 48 HOURS AFTER REQUEST.
[NSR]

27. A RELATIVE ACCURACY TEST AUDIT (RATA) AND ALL OTHER REQUIRED CERTIFICATION TESTS SHALL BE PERFORMED AND COMPLETED ON THE CEMS IN ACCORDANCE WITH 40 CFR PART 75 APPENDIX A AND B. AT LEAST 21 DAYS PRIOR TO THE TEST DATE, THE PERMITTEE SHALL SUBMIT A TEST PROTOCOL TO THE DISTRICT FOR APPROVAL. ADDITIONALLY, THE DISTRICT SHALL BE NOTIFIED A MINIMUM OF 21 DAYS PRIOR TO THE TEST SO THAT OBSERVERS MAY BE PRESENT. WITHIN 30 DAYS OF COMPLETION OF THIS TEST, A WRITTEN TEST REPORT SHALL BE SUBMITTED TO THE DISTRICT FOR APPROVAL.
[40 CFR PART 75]

28. THE CEM SHALL BE MAINTAINED AND OPERATED, AND REPORTS SUBMITTED, IN ACCORDANCE WITH THE REQUIREMENTS OF RULE 19.2 SECTIONS (d), (e), (f)(1)(~~i~~i), (f)(2), (f)(3), (f)(4) AND (f)(5).
[RULE 19.2]

29. THE CONCENTRATION OF AMMONIA SOLUTION USED IN THIS EQUIPMENT SHALL BE LESS THAN 20% AMMONIA BY WEIGHT. RECORDS OF AMMONIA SOLUTION CONCENTRATION SHALL BE MAINTAINED ON SITE FOR A MINIMUM OF FIVE YEARS AND MADE AVAILABLE TO DISTRICT PERSONNEL UPON REQUEST.
[RULE 1421]

30. THIS UNIT SHALL BE SOURCE TESTED TO DEMONSTRATE COMPLIANCE WITH THE NOX,CO, VOC, AND AMMONIA EMISSION STANDARDS OF THIS PERMIT, USING DISTRICT APPROVED METHODS. THE SOURCE TEST AND THE NOX AND CO RATA TESTS SHALL BE CONDUCTED IN ACCORDANCE WITH THE RATA FREQUENCY REQUIREMENTS OF 40 CFR 75, APPENDIX B, SECTIONS 2.3.1 AND 2.3.3.
[NSR]

31. THE SOURCE TEST PROTOCOL SHALL COMPLY WITH THE FOLLOWING REQUIREMENTS:
(A) MEASUREMENTS OF OXIDES OF NITROGEN (NOX), CARBON MONOXIDE (CO), AND STACK GAS OXYGEN CONTENT (O2%) SHALL BE CONDUCTED IN ACCORDANCE WITH U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA) METHOD 7E AND DISTRICT SOURCE TEST METHOD 100, OR THE AIR RESOURCES BOARD (ARB) TEST METHOD 100, AS APPROVED BY THE EPA.
(B) MEASUREMENT OF VOLATILE ORGANIC COMPOUNDS (VOCS) EMISSIONS SHALL BE CONDUCTED IN ACCORDANCE WITH THE SAN DIEGO AIR POLLUTION CONTROL DISTRICT METHODS 25A AND/OR 18.
(C) MEASUREMENTS OF AMMONIA EMISSIONS SHALL BE CONDUCTED IN ACCORDANCE WITH BAY AREA AIR QUALITY MANAGEMENT DISTRICT (BAAQMD) TEST METHOD ST-1B.
(D) SOURCE TESTING SHALL BE PERFORMED AT THE NORMAL LOAD LEVEL, AS SPECIFIED IN 40 CFR PART 75 APPENDIX A SECTION 6.5.2.1.D, AND AT NO LESS THAN 80% OF THE UNIT'S RATED LOAD (UNLESS IT IS DEMONSTRATED TO THE SATISFACTION OF THE DISTRICT THAT THE UNIT CANNOT OPERATE UNDER THESE CONDITIONS.

Permit Conditions Continued...

PERMIT TO OPERATE

IF THIS DEMONSTRATION IS ACCEPTED, THEN EMISSIONS SOURCE TESTING SHALL BE PERFORMED AT THE HIGHEST ACHIEVABLE CONTINUOUS POWER LEVEL.
[RULE 69.3.1, NSR]

32. WITHIN 30 DAYS AFTER COMPLETION OF THE RENEWAL SOURCE TEST OR RATA, A FINAL TEST REPORT SHALL BE SUBMITTED TO THE DISTRICT FOR REVIEW AND APPROVAL.
[RULE 69.3.1, NSR]

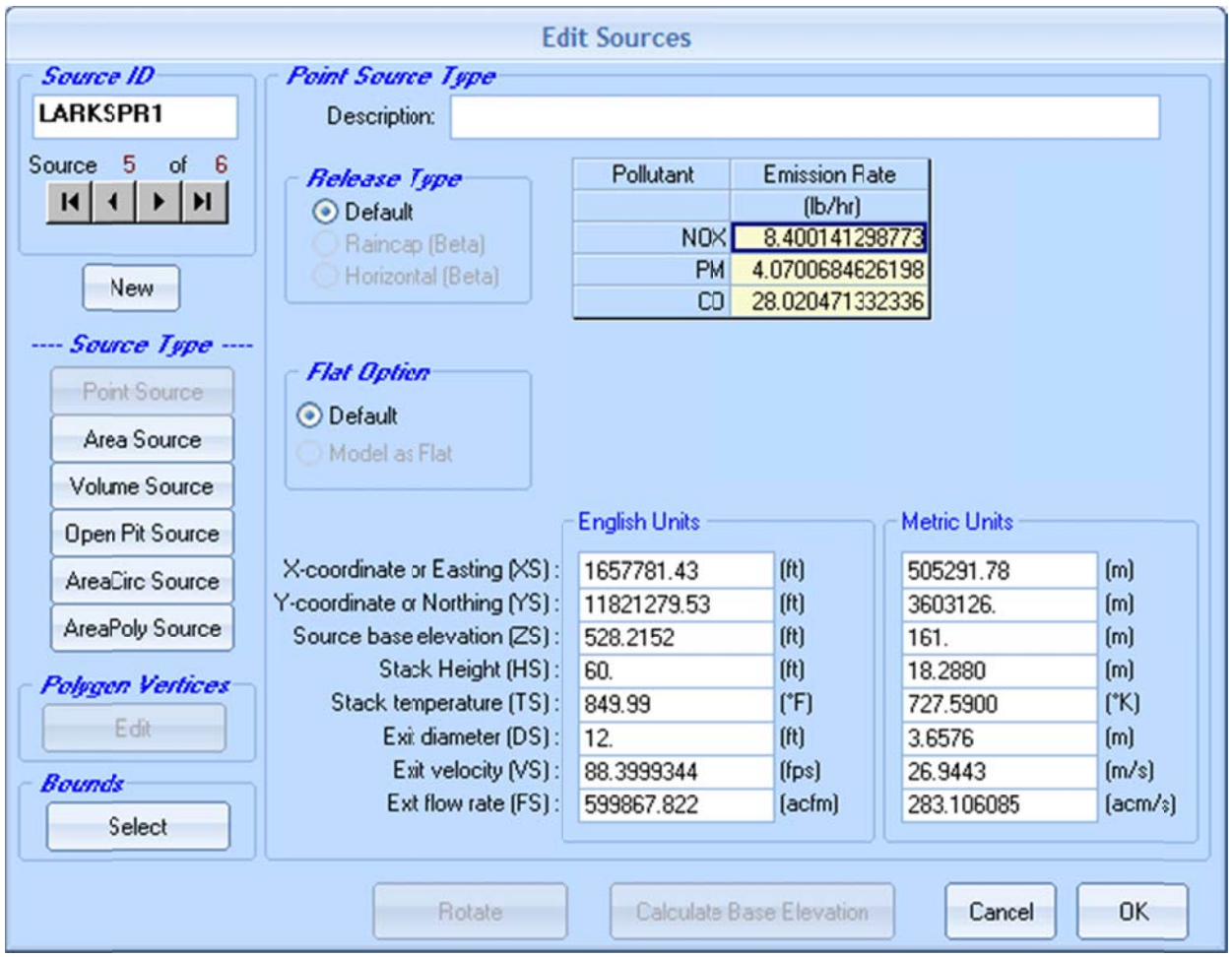
33. EXCEPT AS SPECIFIED HEREIN, ALL RECORDS REQUIRED BY THIS PERMIT SHALL BE MAINTAINED ON SITE FOR A MINIMUM OF FIVE YEARS AND MADE AVAILABLE TO DISTRICT PERSONNEL UPON REQUEST. IF THIS SITE BECOMES UNMANNED, THE PERMITTEE SHALL SUBMIT AN ALTERNATE SITE FOR THE MAINTENANCE OF RECORDS TO DISTRICT FOR APPROVAL.
[RULE 1421]

B. DISTRICT-ONLY--ENFORCEABLE CONDITIONS

34. THE PERMITTEE, SHALL UPON DETERMINATION OF APPLICABILITY AND WRITTEN NOTIFICATION BY THE DISTRICT, COMPLY WITH ALL APPLICABLE REQUIREMENTS OF THE AIR TOXICS 'HOT SPOTS' INFORMATION AND ASSESSMENT ACT (CALIFORNIA HEALTH AND SAFETY CODE SECTION 44300 ET. SEQ.).
[AIR TOXICS HOTS SPOTS]
35. THIS AIR POLLUTION CONTROL DISTRICT PERMIT DOES NOT RELIEVE THE HOLDER FROM OBTAINING PERMITS OR AUTHORIZATION REQUIRED BY OTHER GOVERNMENTAL AGENCIES.

Permit Conditions Continued...

Exhibit 2B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Source ID
LARKSPR1
Source 5 of 6
New
---- Source Type ----
Point Source
Area Source
Volume Source
Open Pit Source
AreaCirc Source
AreaPoly Source
Polygon Vertices
Edit
Bounds
Select
Point Source Type
Description:
Release Type
Default
Raincap (Beta)
Horizontal (Beta)
Pollutant
Emission Rate
(lb/hr)
NOX 8.400141298773
PM 4.0700684626198
CO 28.020471332336
Flat Option
Default
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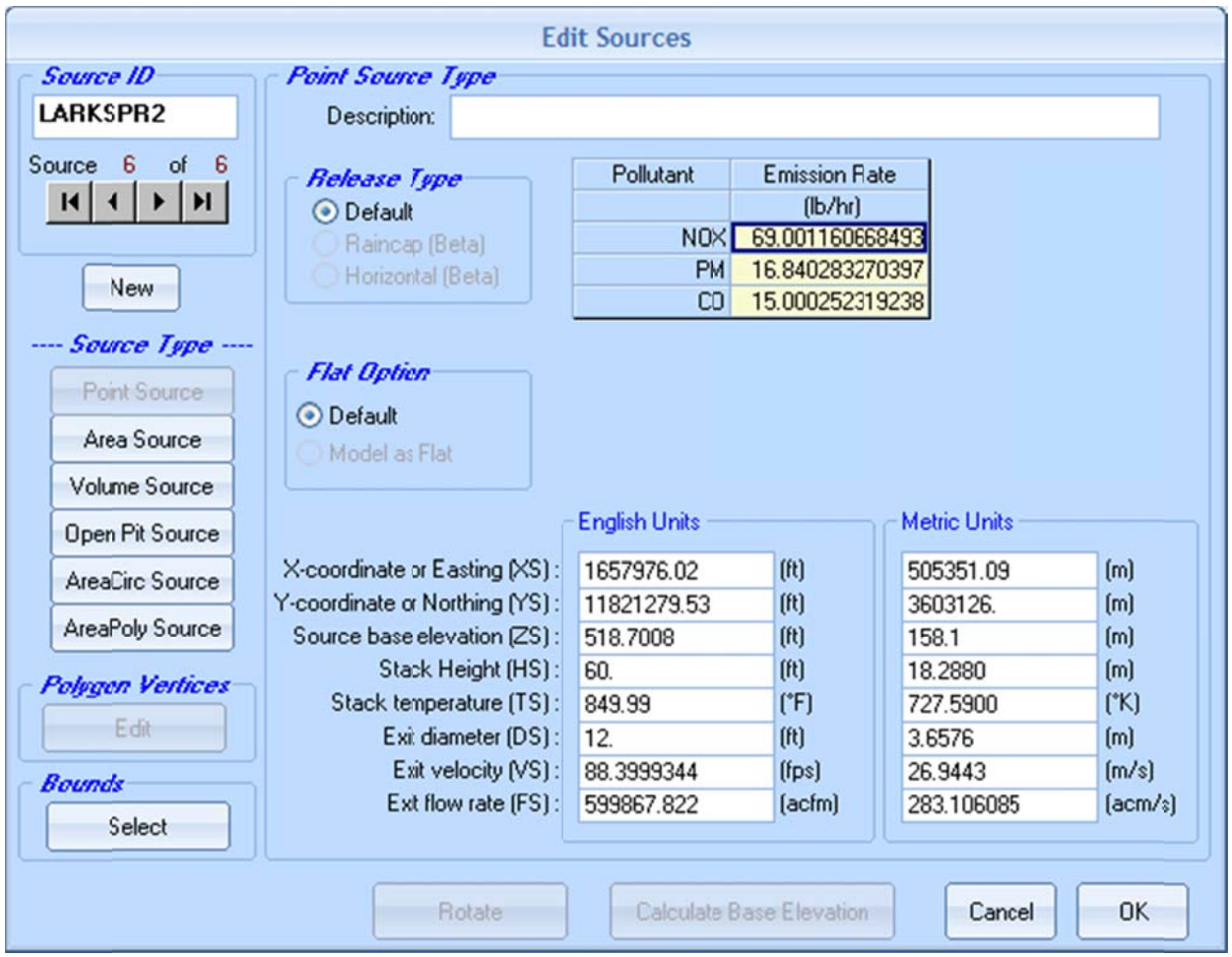
English Units
Metric Units
X-coordinate or Easting (XS): 1657781.43 (ft) 505291.78 (m)
Y-coordinate or Northing (YS): 11821279.53 (ft) 3603126. (m)
Source base elevation (ZS): 528.2152 (ft) 161. (m)
Stack Height (HS): 60. (ft) 18.2880 (m)
Stack temperature (TS): 849.99 (°F) 727.5900 (°K)
Exit diameter (DS): 12. (ft) 3.6576 (m)
Exit velocity (VS): 88.3999344 (fps) 26.9443 (m/s)
Exit flow rate (FS): 599867.822 (acfm) 283.106085 (acm/s)
Rotate
Calculate Base Elevation
Cancel
OK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LARKSPR2
Source 6 of 6
New
---- Source Type ----
Point Source
Area Source
Volume Source
Open Pit Source
AreaCirc Source
AreaPoly Source
Polygon Vertices
Edit
Bounds
Select
Point Source Type
Description:
Release Type
Default
Raincap (Beta)
Horizontal (Beta)
Pollutant
Emission Rate
(lb/hr)
NOX
69.001160668493
PM
16.840283270397
CO
15.000252319238
Flat Option
Default
Model as Flat
English Units
Metric Units
X-coordinate or Easting (XS) :
1657976.02
(ft)
505351.09
(m)
Y-coordinate or Northing (YS) :
11821279.53
(ft)
3603126.
(m)
Source base elevation (ZS) :
518.7008
(ft)
158.1
(m)
Stack Height (HS) :
60.
(ft)
18.2880
(m)
Stack temperature (TS) :
849.99
(°F)
727.5900
(°K)
Exit diameter (DS) :
12.
(ft)
3.6576
(m)
Exit velocity (VS) :
88.3999344
(fps)
26.9443
(m/s)
Exit flow rate (FS) :
599867.822
(acfm)
283.106085
(acm/s)
Rotate
Calculate Base Elevation
Cancel
OK

Exhibit 2C

COUNTY OF SAN DIEGO, AIR POLLUTION CONTROL DISTRICT
10124 OLD GROVE RD, SAN DIEGO, CA 92131
CONTROL NO. (858) 586-2600 FAX (858) 586-2601 PERMIT NO.
XXXXXXX **976138**
EXPIRES
APRIL 1, 201X

PERMIT TO OPERATE

THE FOLLOWING IS HEREBY GRANTED A PERMIT TO OPERATE THE ARTICLE, MACHINE, EQUIPMENT OR CONTRIVANCE DESCRIBED BELOW. THIS PERMIT IS NOT TRANSFERABLE TO A NEW OWNER NOR IS IT VALID FOR OPERATION OF THE EQUIPMENT AT ANOTHER LOCATION, EXCEPT FOR PORTABLE EQUIPMENT. RULE 10C REQUIRES THIS PERMIT TO OPERATE OR COPY BE POSTED ON OR WITHIN 25 FEET OF THE EQUIPMENT, OR MAINTAINED READILY AVAILABLE AT ALL TIMES ON THE OPERATING PREMISES. THIS AIR POLLUTION CONTROL DISTRICT PERMIT DOES NOT RELIEVE THE HOLDER FROM OBTAINING PERMITS OR AUTHORIZATION REQUIRED BY OTHER GOVERNMENTAL AGENCIES.

PERMITTEE	EQUIPMENT ADDRESS
WILDFLOWER ENERGY LP/LARKSPUR	
AUDEN AUBERG	
333 S GRAND AVE #`1570	9355 OTAY MESA RD
LOS ANGELES CA 90071-0000	SAN DIEGO CA 92154-0000

EQUIPMENT DESCRIPTION
ONE (1) GENERAL ELECTRIC 45 MW NOMINALLY RATED MODEL LM 6000 PC SPRINT SIMPLE CYCLE GAS TURBINE WITH A HEAT INPUT RATING OF 395 MM BTU/HR (LHV) WHEN OPERATED ON NATURAL GAS AND 398 MM BTU/HR (LHV) WHEN OPERATED ON LIQUID FUEL, EQUIPPED WITH A WATER INJECTION SYSTEM AND CORMETECH SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM INCLUDING AUTOMATIC AMMONIAINJECTION CONTROL SYSTEM FOR CONTROL OF NOX, CONTINUOUS EMISSIONSMONITORING SYSTEM (CEMS), DATA ACQUISITION AND RECORDING SYSTEMS ANDTHE OPTION OF AN OXIDATION CATALYST SYSTEM: UNIT 200 (EAST UNIT).THE COMBINED TOTAL ELECTRICAL NOMINAL POWER OUTPUT FROM THE LARKSPURPOWER PLANT, INCLUDING THE POWER FROM UNIT 100 AND UNIT 200 IS 90 MW

EVERY PERSON WHO OWNS OR OPERATES THIS EQUIPMENT IS REQUIRED TO COMPLY WITH THE CONDITIONS LISTED BELOW AND ALL APPLICABLE REQUIREMENTS AND DISTRICT RULES, INCLUDING BUT NOT LIMITED TO RULES 50 AND 51.
FAILURE TO OPERATE IN COMPLIANCE IS A MISDEMEANOR AND IS SUBJECT TO CIVIL AND CRIMINAL PENALTIES.

A. FEDERALLY-ENFORCEABLE AND DISTRICT-ENFORCEABLE CONDITIONS

ADMINISTRATIVE

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[RULE 1421]

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[RULE 1421]

3. ANY VIOLATION OF ANY EMISSION STANDARD AS INDICATED BY THE CEMS SHALL BE REPORTED TO THE DISTRICT WITHIN 96 HOURS AFTER SUCH OCCURRENCE.
[CA HEALTH AND SAFETY CODE]

4. IN THE EVENT OF A BREAKDOWN IN AN AUTOMATIC AMMONIA INJECTION CONTROL SYSTEM, A TRAINED OPERATOR SHALL OPERATE THE SYSTEM MANUALLY AND THE BREAKDOWN SHALL BE REPORTED TO THE DISTRICT COMPLIANCE DIVISION PURSUANT TO RULE 98.
[RULE 98]

PERMIT TO OPERATE

5. ACCESS AND FACILITIES FOR FUEL SAMPLES FROM FUEL TANKS OR FUEL LINES SHALL BE PROVIDED TO DISTRICT PERSONNEL FOR OBTAINING SAMPLES FOR ANALYSIS. RECORDS OF FUEL SPECIFICATIONS, INCLUDING THE MATERIAL SAFETY DATA SHEETS (MSDS) AND THE SULFUR CONTENT GUARANTEE, SHALL BE MADE READILY AVAILABLE TOTHE DISTRICT UPON REQUEST.
[RULE 62]

6. AN APPLICATION FOR MODIFICATION OF DISTRICT PERMITS FOR THIS EQUIPMENT SHALL BE REQUIRED FOR ANY PROPOSED PHYSICAL OR OPERATIONAL MODIFICATION TO THE EQUIPMENT DESCRIBED HEREIN, SUCH AS A MODIFICATION TO CONVERT THIS SIMPLE CYCLE TURBINE TO COMBINED CYCLE UNIT. APPLICABLE BACT REQUIREMENTS FOR THE PROPOSED EQUIPMENT MODIFICATION SHALL BE RE-EVALUATED AT THAT TIME.
[RULE 10]

EMISSION LIMITS/OPERATIONAL LIMITS

FUEL:

7. WHEN OPERATING ON NATURAL GAS, THE UNIT SHALL BE FIRED ON PUBLIC UTILITY COMMISSION (PUC) QUALITY NATURAL GAS ONLY. THE PERMITTEE SHALL MAINTAIN, ON SITE, QUARTERLY RECORDS OF THE NATURAL GAS SULFUR CONTENT (GRAINS OF SULFUR COMPOUNDS PER 100 DSCF OF NATURAL GAS) AND THE HIGHER AND LOWER HEATING VALUES (BTU/SCF) OF THE NATURAL GAS; AND PROVIDE SUCH RECORDS TO DISTRICT PERSONNEL UPON REQUEST.
[RULE 62]

8. ONLY CARB CERTIFIED CALIFORNIA DIESEL FUEL OR AN ALTERNATIVE LIQUID FUEL THAT HAS BEEN APPROVED IN WRITING BY THE DISTRICT WITH A SULFUR CONTENT EQUAL TO OR LESS THAN 0.05% BY WEIGHT MAY BE USED AS A BACKUP FUEL FOR THESE UNITS.
[NSR]

9. LIQUID FUEL SHALL BE USED AS FUEL IN THE UNIT ONLY DURING FORCE MAJEURE NATURAL GAS CURTAILMENTS AS DEFINED IN RULE 69 SECTION (C) SUBSECTION (8) AND TO TEST THE EMERGENCY BACK UP FUEL SYSTEM. TESTING OF THE BACK UP FUEL SYSTEM FOR THE UNIT SHALL BE LIMITED TO 24 HOURS PER CALENDAR YEAR. THE TOTAL CUMULATIVE OPERATION ON LIQUID BACK UP FUEL DURING NATURAL GAS CURTAILMENT PERIODS, AND FOR TESTING OR EMERGENCIES FOR THIS UNIT SHALL NOT EXCEED 680 HOURS PER CALENDAR YEAR.
[NSR]

STARTUP/SHUTDOWN:

10. FOR THE PURPOSES OF THIS PERMIT TO OPERATE, STARTUP PERIOD SHALL BE DEFINED AS THE 30 MINUTE TIME PERIOD STARTING WHEN FUEL FLOW BEGINS. SHUTDOWN PERIOD SHALL BE DEFINED AS THE 30-MINUTE PERIOD PRECEDING THE MOMENT AT WHICH FUEL FLOW CEASES. THE DATA ACQUISITION AND HANDLING SYSTEM (DAHS), AS REQUIRED BY 40 CFR PART 75, SHALL RECORD THESE EVENTS.
[RULE 69.3.1]

11. THE UNIT EXHAUST SHALL NOT BYPASS THE EMISSION CONTROL SCR SYSTEM EXCEPT FOR THE FIRST 10 MINUTES OF A STARTUP WHEN OPERATING ON LIQUID FUEL. THE UNIT EXHAUST SHALL NOT BYPASS THE CEMS AT ANY TIME.
[NSR, RULE 69.3.1]

OXIDES OF NITROGEN:

12. WHEN OPERATING ON NATURAL GAS, EMISSIONS OF OXIDES OF NITROGEN (NOX), CALCULATED AS NITROGEN DIOXIDE, FROM THE UNIT EXHAUST STACK SHALL NOT EXCEED 9 PARTS PER MILLION VOLUME ON A DRY BASIS (PPMVD) CORRECTED TO 15% OXYGEN AND AVERAGED OVER EACH CLOCK HOUR AND SHALL NOT EXCEED 5 PPMVD

Permit Conditions Continued...

PERMIT TO OPERATE

CORRECTED TO 15% OXYGEN AND AVERAGED OVER EACH CONINUOUS ROLLING 3-HOUR PERIOD. WHEN OPERATING ON LIQUID FUEL, EMISSIONS OF OXIDES OF NITROGEN (NOX), CALCULATED AS NITROGEN DIOXIDE, FROM THE UNIT EXHAUST STACK SHALL NOT EXCEED 13 PARTS PER MILLION VOLUME ON A DRY BASIS (PPMVD) CORRECTED TO 15% OXYGEN AVERAGED OVER EACH CLOCK HOUR. COMPLIANCE WITH THESE LIMITS SHALL BE DEMONSTRATED CONTINUOUSLY BASED ON CEMS DATA AND BY SOURCE TESTING CALCULATED AS THE AVERAGE OF THREE SUBTESTS. THESE LIMITS SHALL NOT APPLY DURING STARTUP AND SHUTDOWN PERIODS.
[RULE 69.3.1, RULE 69.3, NSR]

13. WHEN OPERATING ON NATURAL GAS, THE NOX MASS EMISSION RATE FROM THE UNIT SHALL NOT EXCEED 8.4 POUNDS PER HOUR OF NITROGEN OXIDES (NOX) CALCULATED AS NITROGEN DIOXIDE AVERAGED OVER EACH CONTINUOUS ROLLING THREE-HOUR PERIOD. WHEN OPERATING ON LIQUID FUEL, THE NOX MASS EMISSION RATE FROM THE UNIT SHALL NOT EXCEED 22.6 POUNDS PER HOUR OF NITROGEN OXIDES (NOX) CALCULATED AS NITROGEN DIOXIDE AND AVERAGED OVER EACH CLOCK HOUR. COMPLIANCE WITH THESE LIMITS SHALL BE DEMONSTRATED CONTINUOUSLY BASED UPON CEMS DATA, AND BASED UPON SOURCE TESTING, CALCULATED AS AN AVERAGE OF THREE SUBTESTS.
[NSR]

14. TOTAL COMBINED OXIDES OF NITROGEN MASS EMISSIONS FROM BOTH UNITS OPERATING AT THIS FACILITY SHALL NOT EQUAL OR EXCEED 50 TONS PER CALENDAR YEAR. THE DAILY NOX MASS EMISSIONS FROM EACH UNIT SHALL BE RECORDED DAILY. THE AGGREGATE NOX MASS EMISSIONS FROM BOTH UNITS FOR EACH CALENDAR MONTH, AND FOR EACH ROLLING 12-MONTH PERIOD, SHALL BE CALCULATED AND RECORDED BY THE 15TH CALENDAR DAY OF THE FOLLOWING MONTH. IN THE EVENT THAT THE 50 TONS PER CALENDAR YEAR EMISSION LIMIT IS PROJECTED TO BE EXCEEDED, THE PERMITTEE SHALL SUBMIT A COMPLETE APPLICATION TO MODIFY THIS PERMIT AT LEAST 6 MONTHS PRIOR TO THE PROJECTED DATE OF EXCEEDANCE, DEMONSTRATING HOW COMPLIANCE WITH ALL APPLICABLE REQUIREMENTS WILL BE ACHIEVED.
[NSR]

CARBON MONOXIDE:

15. EMISSIONS OF CARBON MONOXIDE (CO) FROM THE UNIT EXHAUST STACK SHALL NOT EXCEED 70 PARTS PER MILLION VOLUME ON A DRY BASIS (PPMVD) CORRECTED TO 15% OXYGEN AND AVERAGED OVER EACH CLOCK HOUR. COMPLIANCE WITH THIS LIMIT SHALL BE DEMONSTRATED CONTINUOUSLY BASED ON CEMS DATA AND BY SOURCE TESTING CALCULATED AS THE AVERAGE OF THREE SUBTESTS. THIS LIMIT SHALL NOT APPLY DURING STARTUP AND SHUTDOWN PERIODS.
[NSR]

16. TOTAL COMBINED CARBON MONOXIDE (CO) EMISSIONS FROM BOTH UNITS SHALL NOT EQUAL OR EXCEED THE PREVENTION OF SIGNIFICANT DETERIORATION (PSD) THRESHOLD OF 250 TONS PER CALENDAR YEAR. THE DAILY CO MASS EMISSIONS FROM EACH UNIT SHALL BE RECORDED DAILY. THE AGGREGATE CO MASS EMISSIONS FROM BOTH UNITS FOR EACH CALENDAR MONTH, AND FOR EACH ROLLING 12-MONTH PERIOD SHALL BE CALCULATED AND RECORDED MONTHLY BY THE 15TH CALENDAR DAY OF THE FOLLOWING MONTH. IN THE EVENT THAT AN ANNUAL PSD STATIONARY SOURCE THRESHOLD IS PROJECTED TO BE TRIGGERED, THE APPLICANT SHALL SUBMIT A COMPLETE APPLICATION TO MODIFY THIS PERMIT AT LEAST 6 MONTHS PRIOR TO THE PROJECTED DATE OF EXCEEDANCE, DEMONSTRATING HOW COMPLIANCE WITH ALL APPLICABLE REQUIREMENTS WILL BE ACHIEVED.
[NSR]

VOLATILE ORGANIC COMPOUNDS:

17. EMISSIONS OF VOLATILE ORGANIC COMPOUNDS (VOCS), CALCULATED AS METHANE, FROM THE UNIT EXHAUST STACK SHALL NOT EXCEED 2 PARTS PER MILLION ON A DRY BASIS (PPMVD) CORRECTED TO 15% OXYGEN. COMPLIANCE WITH THIS LIMIT SHALL BE

Permit Conditions Continued...

PERMIT TO OPERATE

DEMONSTRATED BY SOURCE TESTING CALCULATED AS THE AVERAGE OF THREE SUBTESTS. THIS LIMIT SHALL NOT APPLY DURING STARTUP AND SHUTDOWN PERIODS [NSR]

AMMONIA:

18, AMMONIA EMISSIONS SHALL NOT EXCEED 10 PARTS PER MILLION VOLUME ON A DRY BASIS (PPMVD) CORRECTED TO 15% OXYGEN. COMPLIANCE WITH THIS LIMIT SHALL BE DEMONSTRATED BY SOURCE TESTING CALCULATED AS THE AVERAGE OF THREE SUBTESTS. THIS LIMIT SHALL NOT APPLY DURING STARTUP AND SHUTDOWN PERIODS. [RULE 1200]

PARTICULATE MATTER;

19. THE DISCHARGE OF PARTICULATE MATTER FROM THE EXHAUST STACK OF THE UNIT SHALL NOT EXCEED 0.10 GRAINS PER DRY STANDARD CUBIC FOOT (0.23 GRAMS/DSCM). THE DISTRICT MAY REQUIRE PERIODIC TESTING WHEN OPERATING ON LIQUID FUEL TO VERIFY COMPLIANCE WITH THIS STANDARD.
[RULE 53]

20. VISIBLE EMISSIONS FROM THE LUBE OIL VENTS AND THE EXHAUST STACK OF THE UNIT SHALL NOT EXCEED 20% OPACITY FOR MORE THAN THREE (3) MINUTES IN ANY PERIOD OF 60 CONSECUTIVE MINUTES.
[RULE 50]

RECORDKEEPING/MONITORING

21. THE UNIT SHALL BE EQUIPPED WITH CONTINUOUS PARAMETRIC MONITORS TO MEASURE, CALCULATE AND TO RECORD THE FOLLOWING OPERATIONAL CHARACTERISTICS:
    HOURS OF OPERATION (HOURS),
    NATURAL GAS FLOW RATE (SCFH),
    LIQUID FUEL FLOW RATE (GAL/HR),
    EXHAUST GAS TEMPERATURE (DEG. F),
    AMMONIA INJECTION RATE,
    WATER INJECTION RATE,
    RATIO OF WATER INJECTION RATE TO FUEL CONSUMPTION RATE (LB OF WATER TO LB OF FUEL),
    RATIO OF AMMONIA INJECTION RATE TO OUTLET NOX MASS EMISSION RATE (LB OF AMMONIA TO LB OF NOX),
    INLET TEMPERATURE OF THE SCR AND OXIDATION CATALYST BEDS (DEG. F), AND POWER OUTPUT (MW).
    THESE MONITORS SHALL BE INSTALLED, CALIBRATED, AND MAINTAINED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDED PROCEDURES AND A PROTOCOL APPROVED BY THE DISTRICT.
    [RULE 69.3.1, NSR]

22. WATER FLOW METERS OR OTHER MEANS OF MEASURING THE RATE OF WATER INJECTION SHALL BE INSTALLED IN THE COMBUSTION TURBINE WATER INJECTION SYSTEMS AND SHALL BE CALIBRATED AND MAINTAINED TO BE ACCURATE TO AT LEAST 5%.
[RULE 69.3.1, NSR]

23. THE AMMONIA INJECTION FLOW RATE SHALL BE CONTINUOUSLY MONITORED, RECORDED, AND CONTROLLED. RECORDS OF AMMONIA INJECTION RATE AND FLOW RATE DEVICE CALIBRATION SHALL BE MAINTAINED AND MADE AVAILABLE TO THE DISTRICT.
[RULE 1200, NSR]

24. MONTHLY AND ANNUAL RECORDS OF FUEL USAGE SHALL BE MAINTAINED AND MADE AVAILABLE TO THE DISTRICT UPON REQUEST. THESE RECORDS SHALL INDICATE ACTUAL TIMES AND DURATION OF ALL STARTUPS, SHUTDOWNS, FUEL CHANGES, QUANTITY OF FUEL USED, AND THE PURPOSE OF FUEL SWITCHES.
[NSR]

Permit Conditions Continued...

PERMIT TO OPERATE

25. FUEL, WATER INJECTION (FOR NOX CONTROL), AND AMMONIA FLOW METERS SHALL BE INSTALLED AND MAINTAINED TO MEASURE THE FLOW RATE CORRECTED FOR TEMPERATURE AND PRESSURE. CALIBRATION REPORTS, CORRECTION FACTORS AND CON- STANTS FOR THE PREVIOUS FIVE YEARS SHALL BE MAINTAINED ON SITE OR AT A DISTRICT-APPROVED ALTERNATE LOCATION AND MADE AVAILABLE TO THE DISTRICT WITHIN 48 HOURS AFTER REQUEST. FUEL FLOW METERS SHALL MEET THE APPLICABLE QUALITY ASSURANCE REQUIREMENTS OF 40 CFR PART 75, APPENDIX D, SECTION 2.1.6. [NSR]

26. NON-RESETTABLE TOTALIZING METERS WITH AN ACCURACY OF AT LEAST +/- 2% SHALL BE INSTALLED IN EACH NATURAL GAS FUEL LINE TO MEASURE VOLUMETRIC FLOW RATE CORRECTED FOR TEMPERATURE AND PRESSURE OF NATURAL GAS. NON-RESETTABLE TOTALIZING METERS WITH AN ACCURACY OF AT LEAST +/- 2% SHALL BE INSTALLED IN EACH LIQUID FUEL LINE TO MEASURE VOLUMETRIC FLOW RATE OF LIQUID FUEL. [RULE 69.3.1, 40 CFR PART 75]

27. A CONTINUOUS EMISSION MONITORING SYSTEM (CEMS) SHALL BE INSTALLED AND PROPERLY MAINTAINED AND CALIBRATED IN ACCORDANCE WITH AN APPROVED CEMS PROTOCOL TO MEASURE, CALCULATE AND RECORD THE FOLLOWING, IN ACCORDANCE WITH THE APPROVED CEMS PROTOCOL:
    A. HOURLY AVERAGE CONCENTRATION OF OXIDES OF NITROGEN (NOX) CORRECTED TO 15% OXYGEN, IN PARTS PER MILLION (PPM);
    B. HOURLY AVERAGE CONCENTRATION OF CARBON MONOXIDE (CO) CORRECTED TO 15%
    OXYGEN, IN PARTS PER MILLION (PPM);
    C. PERCENT OXYGEN (O2) IN THE EXHAUST GAS (%);
    D. HOURLY MASS EMISSIONS OF OXIDES OF NITROGEN (NOX), IN POUNDS; AND
    E. DAILY MASS EMISSION OF CARBON MONOXIDE (CO), IN POUNDS;
    THE CEMS SHALL BE OPERATED IN ACCORDANCE WITH THE APPROVED CEMS MONITORING PROTOCOL AT ALL TIMES WHEN THE UNIT IS IN OPERATION. A COPY OF THE CEMS MONITORING PROTOCOL SHALL BE MAINTAINED ON SITE AND MADE AVAILABLE TO DISTRICT PERSONNEL UPON REQUEST.
    [RULE 69.3.1, NSR]

28. THE DISTRICT SHALL BE NOTIFIED AT LEAST TWO WEEKS PRIOR TO ANY CHANGESMADE IN CEMS SOFTWARE THAT AFFECT THE MEASUREMENT, CALCULATION OR CORRECTION OF DATA DISPLAYED AND/OR RECORDED BY THE CEMS.
    [RULE 69.3.1, NSR, 40 CFR PART 75]

29. THE DATA ACQUISITION SYSTEM AND HANDLING SYSTEM (DAHS), AS REQUIRED BY 40 CFR 75, SHALL RECORD THE ACTUAL TIMES AND DURATIONS OF THE FOLLOWING EVENTS: STARTUPS, SHUTDOWNS QUANTITY OF EACH FUEL USED, HOURS OF DAILY OPERATION AND CUMULATIVE HOURS OF OPERATION EACH CALENDAR YEAR.
    [40 CFR PART 75]

30. WHEN THE CEMS IS NOT RECORDING DATA AND THE UNIT IS OPERATING, HOURLY NOX EMISSIONS SHALL BE DETERMINED IN ACCORDANCE WITH 40 CFR 75 APPENDIX C. ADDITIONALLY, HOURLY CO EMISSIONS SHALL BE DETERMINED USING THE HOURLY EMISSION RATE RECORDED BY THE CEMS DURING THE MOST RECENT HOURS IN WHICH THE UNIT OPERATED 3 CONTINUOUS HOURS AT NO LESS THAN 80% OF FULL POWER RATING. ALTERNATE CO EMISSION FACTORS SHALL BE DETERMINED FROM COMPLIANCE SOURCE TEST EMISSIONS DATA. THE ALTERNATE HOURLY CO EMISSION RATE SHALL BE REVIEWED AND APPROVED BY THE DISTRICT, IN WRITING.
    [NSR]

31. THE OXIDES OF NITROGEN (NOX) AND OXYGEN (O2) CEMS SHALL BE CERTIFIED ANDMAINTAINED IN ACCORDANCE WITH APPLICABLE FEDERAL REGULATIONS INCLUDING

Permit Conditions Continued...

PERMIT TO OPERATE

THE REQUIREMENTS OF SECTIONS 75.10 AND 75.12 OF TITLE 40, CODE OF FEDERAL REGULATIONS PART 75 (40 CFR 75), THE PERFORMANCE SPECIFICATIONS OF APPENDIXA OF 40 CFR 75, THE QUALITY ASSURANCE PROCEDURES OF APPENDIX B OF 40 CFR 75AND THE CEMS PROTOCOL APPROVED BY THE DISTRICT. THE CARBON MONOXIDE (CO) CEMS SHALL BE CERTIFIED AND MAINTAINED IN ACCORDANCE WITH 40 CFR 60,
[40 CFR PART 75, RULE 69.3.1]

32. THE AIR POLLUTION CONTROL SYSTEM (WATER INJECTION, IF EQUIPPED WITH WATER INJECTION FOR NOX CONTROL), AND THE AMMONIA INJECTION SYSTEM SERVING THE SCR, SHALL BE IN OPERATION IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS AT ALL TIMES WHEN THE UNIT IS IN OPERATION EXCEPT DURING STARTUPS AND SHUTDOWNS. ALL MANUFACTURER'S SPECIFICATIONS SHALL BE MAINTAINED ON SITE OR AT A DISTRICT-APPROVED ALTERNATE LOCATION AND MADE AVAILABLE TO DISTRICT PERSONNEL WITH 48 HOURS AFTER REQUEST.
[NSR]

33. A RELATIVE ACCURACY TEST AUDIT (RATA) AND ALL OTHER REQUIRED CERTIFICATION TESTS SHALL BE PERFORMED AND COMPLETED ON THE CEMS IN ACCORDANCE WITH 40 CFR PART 75 APPENDIX A AND B (PERFORMANCE SPECIFICATIONS). AT LEAST 21 DAYS PRIOR TO THE TEST DATE, THE PERMITTEE SHALL SUBMIT TEST PROTOCOL TO THE DISTRICT FOR APPROVAL. ADDITIONALLY, THE DISTRICT SHALL BE NOTIFIED A MINIMUM OF 21 DAYS PRIOR TO THE TEST SO THAT OBSERVERS MAY BE PRESENT WITHIN 30 DAYS OF COMPLETION OF THIS TEST, A WRITTEN TEST REPORT SHALL BE SUBMITTED TO THE DISTRICT FOR APPROVAL.
[40 CFR PART 75]

34. THE CEM SHALL BE MAINTAINED AND OPERATED, AND REPORTS SUBMITTED, IN ACCORDANCE WITH THE REQUIREMENTS OF RULE 19.2 SECTIONS (d), (e), (f)(1)(~~i~~i), (f)(2), (f)(3), (f)(4) AND (f)(5).
[RULE 19.2]

35. THIS UNIT SHALL BE SOURCE TESTED TO DEMONSTRATE COMPLIANCE WITH THE NOX,CO, VOC, AND AMMONIA EMISSION STANDARDS OF THIS PERMIT, USING DISTRICT APPROVED METHODS. THE SOURCE TEST AND THE NOX AND CO RATA TESTS SHALL BE CONDUCTED IN ACCORDANCE WITH THE RATA FREQUENCY REQUIREMENTS OF 40 CFR 75, APPENDIX B, SECTIONS 2.3.1 AND 2.3.3.
[NSR]

36. THIS EQUIPMENT SHALL BE SOURCE TESTED DURING OIL FIRED OPERATIONS AT LEAST ONCE PER PERMIT YEAR, BEFORE THE PERMIT TO OPERATE RENEWAL DATE, OR AT LEAST ONCE EVERY 300 HOURS OF LIQUID FUEL OPERATION, WHICHEVER IS LESS FREQUENT, TO DEMONSTRATE COMPLIANCE WITH THE OUTLET NOX, CO, VOC, AND AMMONIA EMISSION STANDARDS OF THIS PERMIT, USING DISTRICT APPROVED METHODS, UNLESS OTHERWISE DIRECTED IN WRITING BY THE DISTRICT.
[RULE 69.3.1, NSR]

37. THE SOURCE TEST PROTOCOL REQUIRED TO BE SUBMITTED TO THE DISTRICT 45 DAYS PRIOR TO RENEWAL SOURCE TESTS SHALL COMPLY WITH THE FOLLOWING REQUIREMENTS:
A. MEASUREMENTS OF OUTLET OXIDES OF NITROGEN (NOX), CARBON MONOXIDE (CO), AND STACK GAS OXYGEN CONTENT (O2%) SHALL BE CONDUCTED IN ACCORDANCE WITH THE DISTRICT SOURCE TEST METHOD 100, OR THE AIR RESOURCES BOARD (ARB) TEST METHOD 100 AS APPROVED BY THE US ENVIRONMENTAL PROTECTION AGENCY (EPA).
B. MEASUREMENTS OF OUTLET VOLATILE ORGANIC COMPOUND (VOC) EMISSIONS SHALL BE CONDUCTED IN ACCORDANCE WITH THE SAN DIEGO AIR POLLUTION CONTROL DISTRICT METHODS 25A AND/OR 18.
C. MEASUREMENTS OF OUTLET AMMONIA SHALL BE CONDUCTED IN ACCORDANCE WITH BAY AREA AIR QUALITY MANAGEMENT DISTRICT (BAAQMD) TEST METHOD ST-1B.

Permit Conditions Continued...

PERMIT TO OPERATE

D. WHEN OPERATING ON LIQUID FUEL, MEASUREMENTS OF OUTLET PARTICULATE MATTER EMISSIONS SHALL BE CONDUCTED IN ACCORDANCE WITH THE SAN DIEGO AIR POLLUTION CONTROL DISTRICT METHOD 5.
E. SOURCE TESTING SHALL BE PERFORMED AT OR ABOVE THE NORMAL LOAD LEVEL, AS SPECIFIED IN 40 CFR PART 75 APPENDIX A SECTION 6.5.2.1.D, AND AT NO LESS THAN 80% OF THE UNIT RATED LOAD UNLESS IT IS DEMONSTRATED TO THE SATISFACTION OF THE DISTRICT THAT THE UNIT CANNOT OPERATE UNDER THESE CONDITIONS.
[RULE 69.3.1, NSR]

38. WITHIN 30 DAYS AFTER COMPLETION OF THE RENEWAL SOURCE TEST OR RATA, A FINAL TEST REPORT SHALL BE SUBMITTED TO THE DISTRICT FOR REVIEW AND APPROVAL. [RULE 69.3.1, 40 CFR PART 75, NSR]

B. DISTRICT-ONLY--ENFORCEABLE CONDITIONS

39. THE PERMITTEE, SHALL UPON DETERMINATION OF APPLICABILITY AND WRITTEN NOTIFICATION BY THE DISTRICT, COMPLY WITH ALL APPLICABLE REQUIREMENTS OF THE AIR TOXICS 'HOT SPOTS' INFORMATION AND ASSESSMENT ACT (CALIFORNIA HEALTH AND SAFETY CODE SECTION 44300 ET. SEQ.).
[AIR TOXICS HOTS SPOTS]

40. THIS AIR POLLUTION CONTROL DISTRICT PERMIT DOES NOT RELIEVE THE HOLDER FROM OBTAINING PERMITS OR AUTHORIZATION REQUIRED BY OTHER GOVERNMENTAL AGENCIES.

Permit Conditions Continued...

Exhibit 2D

April 23, 2003

To: Arthur Carbonell
Mechanical Engineering Section

From: Ralph DeSiena
Monitoring and Technical Services Section

Subject: Otay Mesa Generating Co., LLC
Application No. 978379

An Air Quality Impact Analysis (AQIA) was performed for the Otay Mesa Generating Project 510 MW natural gas-fired, combined cycle electric generating project by Sierra Research for Otay Mesa Generating Company, LLC in support of requested modifications to the Final Determination of Compliance (FDOC). The FDOC was previously revised in April 2002 (Amendment 1A) and included a revised site layout, increased stack heights, reduced PM10 emissions, and the addition of two wet surface air coolers. Additional design changes that affect the air quality impact assessment were included in a new submittal dated July 2002 (Amendment 1B). Design changes that were included are:

- The facility layout was modified, resulting in changes in stack and structure locations.
- The stacks for the two turbines are now separated and raised in height an additional 16 feet to the new stack height of 160 feet.
- 388.1 MMBtu/hr (HHV) duct burners will be added to each HRSG.
- The addition of an auxiliary boiler.

The facility potential to emit emissions per this amendment, as compared to the original project, are as follows:

POLLUTANT	ORIGINAL	AMENDMENT	CHANGE
Nitrogen oxides	100 TPY	100 TPY	0 TPY
Carbon monoxide	281.8 TPY	316 TPY	+34 TPY
Sulfur dioxide	39.4 TPY	12.8 TPY	-26.6 TPY
Particulate matter	159.6 TPY	99.5 TPY	-60.1 TPY
Volatile organic compounds	29.2 TPY	47.5 TPY	+18 TPY

The facility is a major stationary source and PSD source for Particulate Matter (PM10), Nitrogen oxides (NO_x), and Carbon Monoxide (CO).

Dispersion modeling was conducted for ongoing operational emissions of NO_2, CO, SO_2, and PM10. The applicant and their consultant (Sierra Research) worked closely with the District in developing modeling and analysis procedures in support of demonstrating compliance with all applicable requirements. Various modeling techniques were employed including ISCST3, ISC_OLM, and AERMOD. Table 1 summarizes the model and meteorological data employed for impact analysis of the various pollutants and averaging times.

TABLE 1
AIR QUALITY MODEL
AND METEOROLOGICAL DATA
USED FOR AQIA

POLLUTANT	AVERAGE PERIOD	MODEL	MET DATA
NO_2	1 Hour	ISC_OLM	MIRAMAR 92-94
NO_2	Annual	ISCST3	MIRAMAR 92-94
CO	All	ISCST3	MIRAMAR 92-94
PM10	24 Hour	AERMOD	OTAY 94-96
PM10	Annual	ISCST3	MIRAMAR 92-94

To ensure the impacts analyzed were for maximum emission levels and worst-case dispersion conditions, a screening procedure was used to determine the inputs for the maximum impact modeling. The screening analysis showed that impacts were maximized for each pollutant when the turbines operated at 100% load with duct firing at low ambient temperature conditions. The turbine emissions and stack parameters during these operating conditions are summarized in Table 2.

TABLE 2
TURBINE EMISSIONS AND STACK PARAMETERS
PRODUCING WORST CASE IMPACTS
DURING NORMAL OPERATING CONDITIONS

Stack Diameter (Feet)	Stack Height (Feet)	Exhaust Temp (deg K)	Exhaust Velocity (m/s)	NOx lb/hr	SO_2 lb/hr	CO lb/hr	PM10 lb/hr
18.5	160	354.1	19.26	15.95	1.55	29.1	11.5

During ongoing operations, turbine shutdown and startups will occur. Facility impacts were evaluated with one turbine in startup operating at the emission and stack parameters (60% load) in Table 3 and one turbine at peak load as defined in Table 2.

TABLE 3
TURBINE EMISSIONS AND STACK PARAMETERS
DURING STARTUP CONDITIONS

Stack Diameter (Feet)	Stack Height (Feet)	Exhaust Temp (deg K)	Exhaust Velocity (m/s)	NOx lb/hr	SO_2 lb/hr	CO lb/hr	PM10 lb/hr
18.5	160	347.0	12.78	239.9	0.9	2706	7.5

An auxiliary boiler was added to the facility in this amendment. The auxiliary boiler may be operated while 1 turbine is operating in peak mode, while the other turbine is in startup mode. The auxiliary boiler emissions and stack parameters during these ongoing operating conditions are summarized in Table 4.

TABLE 4
AUXILIARY BOILER EMISSIONS AND STACK PARAMETERS
DURING A TURBINE STARTUP

Stack Diameter (Feet)	**Stack Height** (Feet)	**Exhaust Temp** (deg K)	**Exhaust Velocity** (m/s)	**NOx** lb/hr	**SO_2** lb/hr	**CO** lb/hr	**PM10** lb/hr
2.5	85	435.9	27.0	0.96	0.06	3.26	1.65

The maximum facility impacts were determined by evaluating impacts while both turbines were operating under various load and ambient conditions with and without duct burners firing. Additionally, facility modeling was performed with 1 turbine at peak load, 1 turbine in startup mode, and the auxiliary boiler operating. Maximum predicted short-term impacts for NO_2 and CO are seen with 1 turbine in startup mode since these emissions are elevated. SO_2 and PM10 emissions are not elevated during turbine startups and, therefore, maximum impacts for these pollutants are seen while both turbines are operating at peak load conditions. The maximum predicted facility impact for any of the various on-going operation scenarios modeled is presented in Table 5. Worst case background pollutant concentrations were added to the predicted maximum pollutant impacts and compared to Federal and California Ambient Air Quality Standards.

TABLE 5
MODELED MAXIMUM IMPACTS
FOR ONGOING FACILITY OPERATION

Pollutant	**Averaging Period**	**Maximum Modeled Impact[6] ($\mu g/m^3$)**	**Background[1] ($\mu g/m^3$)**	**Total Predicted Concentration ($\mu g/m^3$)**	**CAAQS ($\mu g/m^3$)**	**NAAQS ($\mu g/m^3$)**
NO_2	1-Hour	201[5]	205	406	470	------
NO_2	Annual	0.65[2]	37.6	38.25	------	100
SO_2	1-Hour	9.1	392.6	401.7	655	-----
SO_2	3-Hour	7.7	183.2	190.9	-----	1300
SO_2	24-Hour	1.5	62.8	64.3	105	365
SO_2	Annual	0.08	10.5	10.58	-----	80
CO	1-Hour	9025	8245	17270	23,000	40,000
CO	8-Hour	1797	4398	6195	10,000	10,000
PM10	24-Hour	4.8[4]	103	107.8	50[3]	150
PM10	Annual[8]	0.98	32	33	-----	50
PM10	Annual[7]	0.98	29	30	30[3]	-----

[1] Maximum concentration observed at the Chula Vista Monitoring station (1993-1997).
[2] The predicted annual NO_x increase is 0.87 $\mu g/m^3$. Using the ARM default value of 0.75, this is reduced to 0.65 $\mu g/m^3$.
[3] The project area is designated as non-attainment for the state PM_{10} standards.
[4] Value from AERMOD.
[5] Value from ISC_OLM.
[6] Values from ISCST3 modeling unless noted otherwise.
[7] Geometric mean
[8] Arithmetic mean

The results of the modeling indicate that ongoing facility operation will not result in exceedances of Federal and California standards with the exception of the California 24-Hour standard for PM10,

for which the project area is designated non-attainment. Since background PM10 values exceed this standard in the project vicinity, modeling was performed to determine whether operation of the facility would result in additional violations of the California 24 Hour PM10 standard.

Since the maximum predicted impact for the facility was 4.8 $\mu g/m^3$, AERMOD modeling was performed for all days in the 1994-1996 period that PM10 background concentrations were greater than 45 $\mu g/m^3$ but less than or equal to 50 $\mu g/m^3$ (California Standard). The results are presented in Table 6. The results demonstrate that ongoing facility operations would not cause additional violations of the California 24-hour Ambient Air Quality Standard for PM10.

TABLE 6
MODELING RESULTS FOR DAYS
WITH CHULA VISTA 24-HOUR PM10 CONCENTRATIONS
GREATER THAN 45 µg/m³ BUT LESS THAN THE CAAQS

Date of High Background	Chula Vista Background ($\mu g/m^3$)	Highest Daily Prediction ($\mu g/m^3$)	Total PM10 ($\mu g/m^3$)
August 31, 1995(day 243)	46	1.8	47.8
November 5, 1995(day 309)	46	2.5	48.5
November 30, 1995(day 334)	46	1.0	47.0
October 6, 1996(day 280)	48	1.2	49.2
October 18, 1996(day 292)	46	2.0	48.9

During the initial commissioning period, CO and NO_x emissions are expected to be much higher since the control system will not yet be optimized. 1-Hour CO, 8-Hour CO, and 1-Hour NO_x emissions were modeled to determine whether the Federal and California Ambient Air Quality Standards for CO and NO_2 would be violated during commissioning. SO_2 and PM10 emissions are not elevated during this period and, therefore, were not evaluated.

Since emissions will vary during this period dependent upon control equipment status, and whether one or both turbines are operating, an assumption was made to assume that the total emissions were released from a single stack for this modeling. It was also assumed that the auxiliary boiler would not be operating at this time. The turbine emissions and stack parameters during the commissioning period operation are summarized in Table 7.

TABLE 7
TURBINE EMISSIONS AND STACK PARAMETERS
DURING COMMISSIONING

Stack Diameter (Feet)	Stack Height (Feet)	Exhaust Temp (deg K)	Exhaust Velocity (m/s)	NOx lb/hr	SO_2 lb/hr	CO lb/hr	PM10 lb/hr
18.5	160	365.3	13.53	1133	N/A	27063	N/A

The maximum predicted facility impacts modeled for the commissioning period are presented in Table 8 below. Worst case background pollutant concentrations were added to the predicted maximum pollutant impacts and compared to Federal and California Ambient Air Quality Standards. The ISC_OLM model was used to determine NO_2 maximum 1-Hour predicted concentrations. The ISCST3 model was used to determine the predicted 1-Hour and 8-Hour CO impacts.

TABLE 8
MODELED MAXIMUM IMPACTS
FOR COMMISSIONING PERIOD FACILITY OPERATION

Pollutant	Averaging Period	Maximum Modeled Impact[3] ($\mu g/m^3$)	Background ($\mu g/m^3$)	Total Predicted Concentration ($\mu g/m^3$)	CAAQS ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
NO_2	1-Hour	405[2]	21[1]	426	470	------
CO	1-Hour	8035	8245	16280	23,000	40,000
CO	8-Hour	3882	4398	8280	10,000	10,000

[1] NO_2 concentration observed at the Chula Vista Monitoring station for max impact hour (993040104).
[2] Value from ISC_OLM.
[3] Values from ISCST3 modeling unless noted otherwise.

The results demonstrate that facility operations during the commissioning period will not cause violations of California or Federal Ambient Air Quality Standard for CO or NO_2.

In conclusion, the Air Quality Impact Analysis results demonstrate that facility operations during the commissioning period and normal ongoing operations will not cause violations of either the California or Federal Ambient Air Quality Standards for CO, NO_2, SO_2, and PM10.

Ralph DeSiena
Air Pollution Meteorologist
San Diego Air Pollution Control District

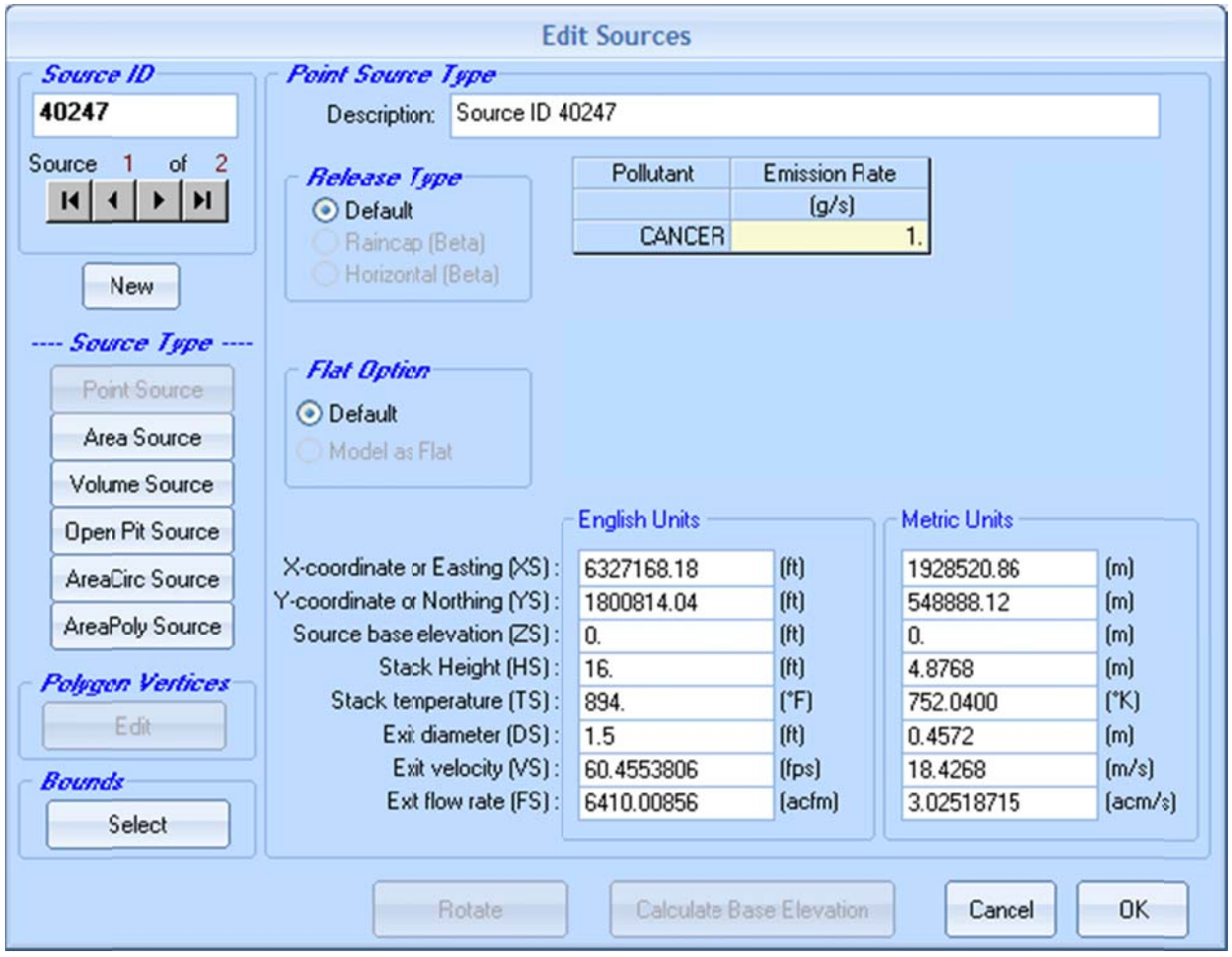
Exhibit 2E

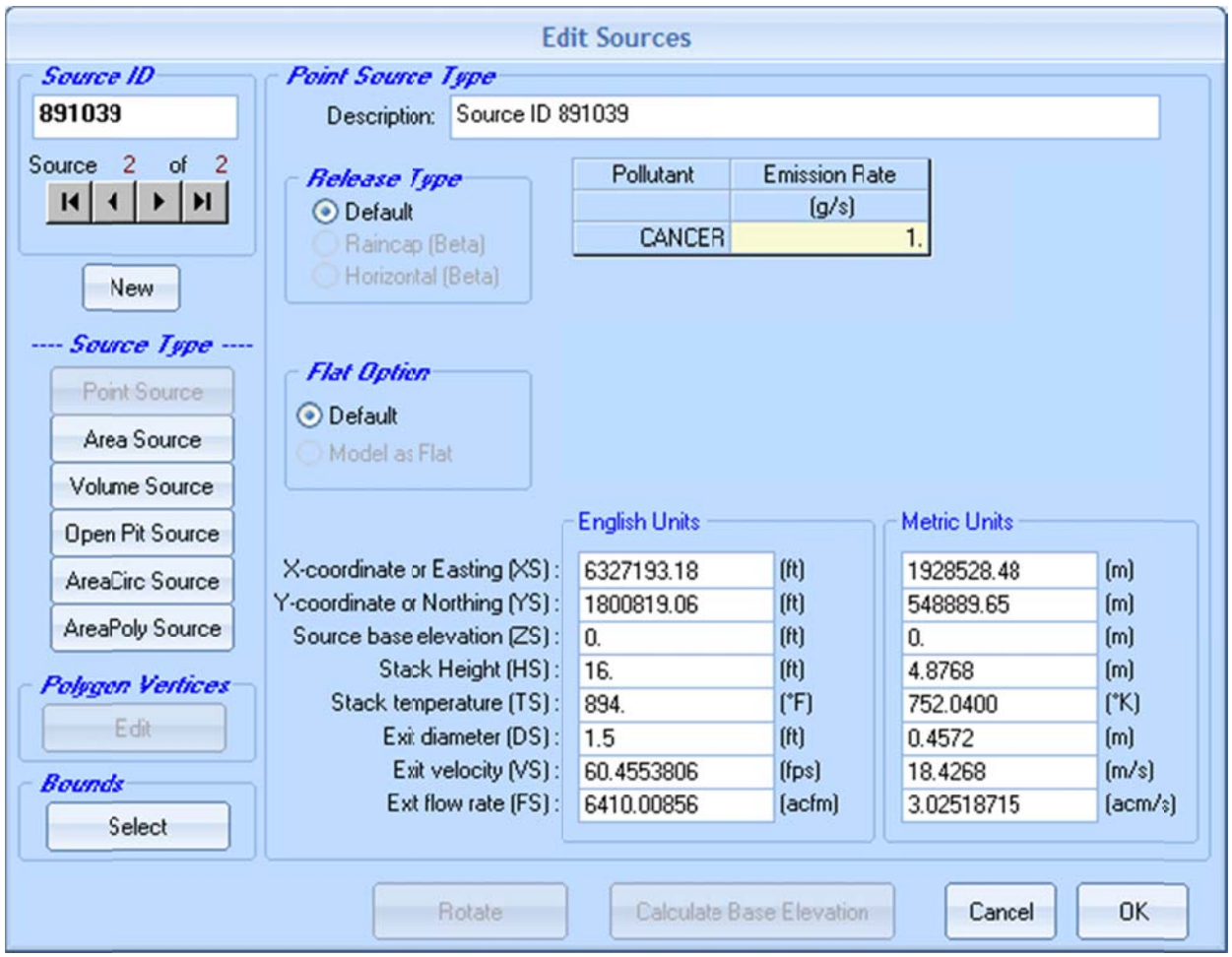
These are the two sources modeled for Cancer Risk in 1999 at Pacific recovery.

The release parameters are correct but I believe that the coordinates indicated are Cal State plane(feet)?

The source IDs are correct.

I can not find any CO modeling for these two engines

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Source 2 of 2
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Area Source
Volume Source
Open Pit Source
AreaCirc Source
AreaPoly Source
Polygon Vertices
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Bounds
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Point Source Type
Description: Source ID 891039
Release Type
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Horizontal (Beta)
Pollutant
Emission Rate
(g/s)
CANCER
1.
Flat Option
Default
Model as Flat
English Units
Metric Units
X-coordinate or Easting (XS): 6327193.18 (ft) 1928528.48 (m)
Y-coordinate or Northing (YS): 1800819.06 (ft) 548889.65 (m)
Source base elevation (ZS): 0. (ft) 0. (m)
Stack Height (HS): 16. (ft) 4.8768 (m)
Stack temperature (TS): 894. (°F) 752.0400 (°K)
Exit diameter (DS): 1.5 (ft) 0.4572 (m)
Exit velocity (VS): 60.4553806 (fps) 18.4268 (m/s)
Exit flow rate (FS): 6410.00856 (acfm) 3.02518715 (acm/s)
Rotate
Calculate Base Elevation
Cancel
OK

Exhibit 2F

July 19, 2004

To: Arthur Carbonell
Mechanical Engineering Section

From: Ralph DeSiena
Monitoring and Technical Services Section

Subject: Pacific Recovery Corp
Application No. 979979

I have completed an Air Quality Impact Analysis (AQIA) for two landfill gas fired engines located at the Otay Landfill on Otay Mesa in southern San Diego County. Operation of these two engines simultaneously triggered the District's AQIA requirements for CO emissions only.

EPA's ISC Prime model was used to determine 1-Hour and 8-Hour maximum predicted CO concentrations in the project vicinity. The modeling was performed in accordance with EPA guidance and District standard procedures. Regulatory default settings were used and building downwash was considered. Three years of meteorological data (1993-1995) for Miramar, NAS, CA were used for the modeling. The receptor grid was sufficiently dense to identify maximum impacts.

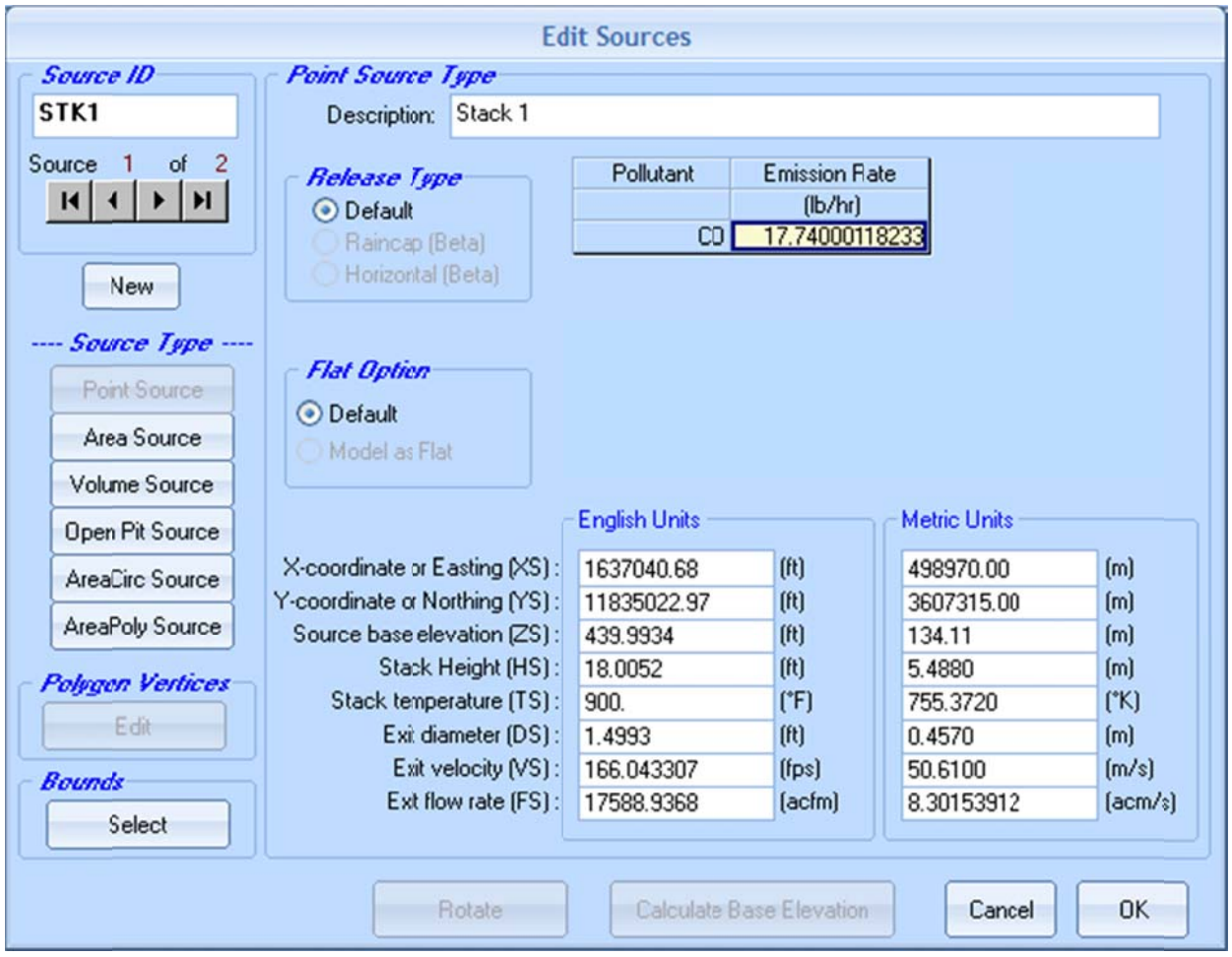
A review of the nearest (Otay Mesa) monitoring station data for 2000-2002 indicated worst-case 1-Hour and 8-Hour CO concentrations were 9620 $\mu g/m^3$ and 6757 $\mu g/m^3$ respectively.

A total CO emission rate of 35.48 lbs/hr for the two engines was used in this modeling analysis. The emission rate was based upon the new engines operating at a 100% load rating.

The results of the modeling, including worst-case monitored background concentrations, indicated that the California and Federal 1-Hour and 8-Hour standards for CO would not be exceeded due to the proposed operation of this facility. Table 1 summarizes the results for this modeling.

Table 1
Predicted Maximum Ambient CO Concentrations

Average Period	Predicted Impact $\mu g/m^3$	Background $\mu g/m^3$	Total Impact $\mu g/m^3$	California Standard $\mu g/m^3$	Federal Standard $\mu g/m^3$
1-Hour	1900	9620	11520	23000	40000
8-Hour	1422	6757	8179	10000	10000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Bounds
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Point Source Type
Description: Stack 1
Release Type
Default
Raincap (Beta)
Horizontal (Beta)
Pollutant
Emission Rate
(lb/hr)
CO
17.74000118233
Flat Option
Default
Model as Flat
English Units
Metric Units
X-coordinate or Easting (XS): 1637040.68 (ft) 498970.00 (m)
Y-coordinate or Northing (YS): 11835022.97 (ft) 3607315.00 (m)
Source base elevation (ZS): 439.9934 (ft) 134.11 (m)
Stack Height (HS): 18.0052 (ft) 5.4880 (m)
Stack temperature (TS): 900. (°F) 755.3720 (°K)
Exit diameter (DS): 1.4993 (ft) 0.4570 (m)
Exit velocity (VS): 166.043307 (fps) 50.6100 (m/s)
Ext flow rate (FS): 17588.9368 (acfm) 8.30153912 (acm/s)
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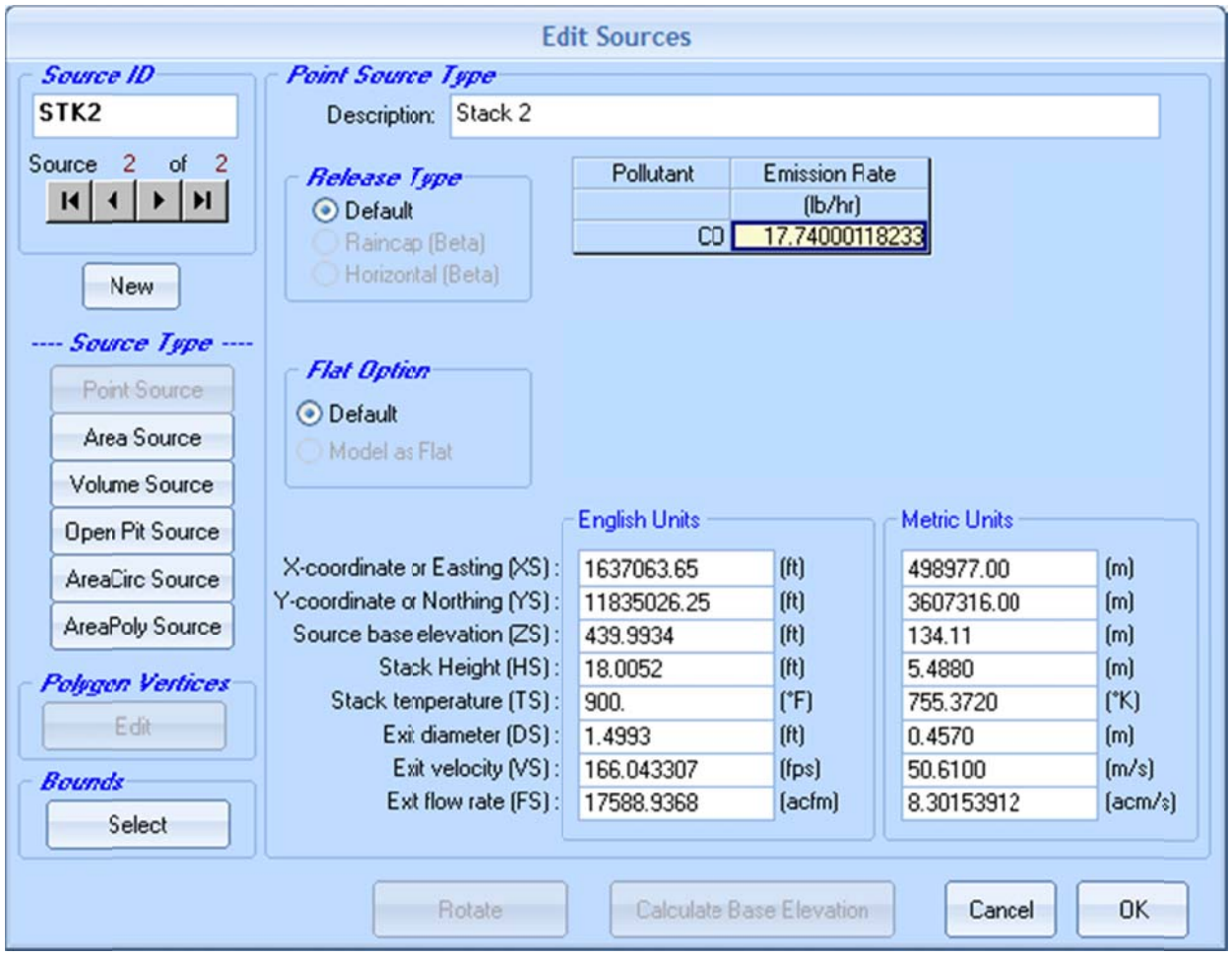
Calculate Base Elevation
Cancel
OK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Volume Source
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AreaPoly Source
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Release Type
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Raincap (Beta)
Horizontal (Beta)
Pollutant
Emission Rate
(lb/hr)
CO
17.74000118233
Flat Option
Default
Model as Flat
English Units
Metric Units
X-coordinate or Easting (XS): 1637063.65 (ft) 498977.00 (m)
Y-coordinate or Northing (YS): 11835026.25 (ft) 3607316.00 (m)
Source base elevation (ZS): 439.9934 (ft) 134.11 (m)
Stack Height (HS): 18.0052 (ft) 5.4880 (m)
Stack temperature (TS): 900. (°F) 755.3720 (°K)
Exit diameter (DS): 1.4993 (ft) 0.4570 (m)
Exit velocity (VS): 166.043307 (fps) 50.6100 (m/s)
Ext flow rate (FS): 17588.9368 (acfm) 8.30153912 (acm/s)
Rotate
Calculate Base Elevation
Cancel
OK

Exhibit 2G

DEVICE/MATERIAL EMISSIONS
2009 APPROVED INVENTORY REPORT

PACIFIC RECOVERY CORP
OTAY LANDFILL
CHULA VISTA , CA 91911-0

Facility ID: 6068A
Contact:
Phone Number: (619) 421-5945

The San Diego Air Pollution Control District has prepared emission estimates for the following device/material:

Permit Number: 40247

Device ID: 1

Two (2) Piston Engines: Cooper Superior, Model 16sgta, Prechamber, Lean Burn, Landfill Gas Fired, Each 2650 Bhp At 900 Rpm, With An In-line Oxygen Analyzer, And Receiving Gas From A Collection System Consisting Of Extraction Wells And Condensate Management Equipment. (040247 891039/rlb/12-91/ Rev 7-98)(976994 Alc 03/02)	Engine #1

Process Type: COMBUSTION - GASEOUS FUEL
Device/Material: LANDFILL GAS
Calculation Method: Engine, Landfill Gas Fired, , Uncontrolled, AP-42, 2.4 September 01, 1997
Emission Factor Units: lbs pollutant/million ft3 fuel

Criteria Pollutant	Emission Factor	Annual Emissions (tons/yr)	Max Hourly Emissions (lbs/hr)
Carbon Monoxide (CO)	2.53e+002	39.4	12.1
Nitrogen Oxides (NOx)	8.56e+001	13.3	4.1
Particulate Matter (PM10)	2.30e+001	3.6	1.1
Reactive Organic Gases (ROG)	2.66e+000	0.4	0.1
Sulfur Oxides (SOx)	7.34e+000	1.1	0.4
Total Organic Gases (TOG)	1.67e+001	2.6	0.8
Total Particulates (TSP)	2.30e+001	3.6	1.1

Exhibit 2H

DEVICE/MATERIAL EMISSIONS
2009 APPROVED INVENTORY REPORT

PACIFIC RECOVERY CORP
OTAY LANDFILL
CHULA VISTA , CA 91911-0

Facility ID: 6068A
Contact:
Phone Number: (619) 421-5945

The San Diego Air Pollution Control District has prepared emission estimates for the following device/material:

Permit Number: 40247

Device ID: 2

Two (2) Piston Engines: Cooper Superior, Model 16sgta, Prechamber, Lean Burn, Landfill Gas Fired, Each 2650 Bhp At 900 Rpm, With An In-line Oxygen Analyzer, And Receiving Gas From A Collection System Consisting Of Extraction Wells And Condensate Management Equipment. (040247 891039/rlb/12-91/ Rev 7-98)(976994 Alc 03/02)	Engine #2

Process Type: COMBUSTION - GASEOUS FUEL
Device/Material: LANDFILL GAS
Calculation Method: Engine, Landfill Gas Fired, , Uncontrolled, AP-42, 2.4 September 01, 1997
Emission Factor Units: lbs pollutant/million ft3 fuel

Criteria Pollutant	Emission Factor	Annual Emissions (tons/yr)	Max Hourly Emissions (lbs/hr)
Carbon Monoxide (CO)	2.24e+002	35.0	10.8
Nitrogen Oxides (NOx)	6.88e+001	10.8	3.3
Particulate Matter (PM10)	2.30e+001	3.6	1.1
Reactive Organic Gases (ROG)	2.66e+000	0.4	0.1
Sulfur Oxides (SOx)	7.34e+000	1.1	0.4
Total Organic Gases (TOG)	1.67e+001	2.6	0.8
Total Particulates (TSP)	2.30e+001	3.6	1.1

Exhibit 2I

DEVICE/MATERIAL EMISSIONS
2009 APPROVED INVENTORY REPORT

PACIFIC RECOVERY CORP
OTAY LANDFILL
CHULA VISTA , CA 91911-0

Facility ID: 6068A
Contact:
Phone Number: (619) 421-5945

The San Diego Air Pollution Control District has prepared emission estimates for the following device/material:

Permit Number: 979979

Device ID: 1

Two Internal Combustion Piston Engines: Cooper Superior, Model 16 Sgta, 2650 Bhp Each, Landfill Gas Fired, Lean Burn, Turbocharged, Pre-chamber Combustion, S/n's 305309 And 303419, Each Driving An 1875-kw Generator. (979979 Alc 06/07)	Engine #3 S/n 305309

Process Type: COMBUSTION - GASEOUS FUEL
Device/Material: LANDFILL GAS
Calculation Method: Engine, Landfill Gas Fired, , Uncontrolled, AP-42, 2.4 September 01, 1997
Emission Factor Units: lbs pollutant/million ft3 fuel

Criteria Pollutant	Emission Factor	Annual Emissions (tons/yr)	Max Hourly Emissions (lbs/hr)
Carbon Monoxide (CO)	2.00e+002	35.8	9.6
Nitrogen Oxides (NOx)	4.41e+001	7.9	2.1
Particulate Matter (PM10)	2.30e+001	4.1	1.1
Reactive Organic Gases (ROG)	2.66e+000	0.5	0.1
Sulfur Oxides (SOx)	7.34e+000	1.3	0.4
Total Organic Gases (TOG)	1.67e+001	3.0	0.8
Total Particulates (TSP)	2.30e+001	4.1	1.1

Exhibit 2J

DEVICE/MATERIAL EMISSIONS
2009 APPROVED INVENTORY REPORT

PACIFIC RECOVERY CORP
OTAY LANDFILL
CHULA VISTA , CA 91911-0

Facility ID: 6068A
Contact:
Phone Number: (619) 421-5945

The San Diego Air Pollution Control District has prepared emission estimates for the following device/material:

Permit Number: 979979

Device ID: 2

Two Internal Combustion Piston Engines: Cooper Superior, Model 16 Sgta, 2650 Bhp Each, Landfill Gas Fired, Lean Burn, Turbocharged, Pre-chamber Combustion, S/n's 305309 And 303419, Each Driving An 1875-kw Generator. (979979 Alc 06/07)	Engine #4 S/n 303419

Process Type: COMBUSTION - GASEOUS FUEL
Device/Material: LANDFILL GAS
Calculation Method: Engine, Landfill Gas Fired, , Uncontrolled, AP-42, 2.4 September 01, 1997
Emission Factor Units: lbs pollutant/million ft3 fuel

Criteria Pollutant	Emission Factor	Annual Emissions (tons/yr)	Max Hourly Emissions (lbs/hr)
Carbon Monoxide (CO)	1.86e+002	34.1	8.9
Nitrogen Oxides (NOx)	6.85e+001	12.6	3.3
Particulate Matter (PM10)	2.30e+001	4.2	1.1
Reactive Organic Gases (ROG)	2.66e+000	0.5	0.1
Sulfur Oxides (SOx)	7.34e+000	1.3	0.4
Total Organic Gases (TOG)	1.67e+001	3.1	0.8
Total Particulates (TSP)	2.30e+001	4.2	1.1

Exhibit 2K

NO2 Priority	PO_NUM	ID_NUM	DBA	EQUIP_DESC	Mfg	Model
1	40247-1	6068	Pacific Recovery, Otay Landfill, Eng @1	One Cooper Superior model 16SGTA pre-chamber lean burn piston engine, rated at 2650 bhp at 900 rpm. Fueled with landfill gas from a landfill gas collection system consisting of 62 wells and associated landfill gas venting system which also supplies fuel to engine #2.	Cooper	16SGTA
1	40247-2	6068	Pacific Recovery, Otay Landfill, Eng #2	One Cooper Superior model 16SGTA pre-chamber lean burn piston engine, rated at 2650 bhp at 900 rpm. Fueled with landfill gas from a landfill gas collection system consisting of 62 wells and associated landfill gas venting system which also supplies fuel to engine #1.	Cooper	16SGTA
1	979979-3	6068	Pacific Recovery, Engine #3, Otay Landfill	One Cooper Superior model 16SGTA pre-chamber lean burn piston engine, rated at 2650 bhp at 900 rpm. Fueled with landfill gas from a landfill gas collection system consisting of 62 wells and associated landfill gas venting system which also supplies fuel to engine #1	Cooper	16SGTA
1	979979-4	6068	Pacific Recovery, Engine #4, Otay Landfill	One Cooper Superior model 16SGTA pre-chamber lean burn piston engine, rated at 2650 bhp at 900 rpm. Fueled with landfill gas from a landfill gas collection system consisting of 62 wells and associated landfill gas venting system which also supplies fuel to engine #1	Cooper	16SGTA

TC = Turbocharged
AC = Aftercooled
4DR = Timing retarded by 4 degrees
DPF Diesel Particulate Filter
SCR = Selective Catalytic Reduction
OxCat = Oxidation Catalyst
LB = Lean Burn
LFG = Landfill Gas

BHP	Spark Ignited Engine Type	Turbocharged	Aftercooled	Timing	Diesel Particulate Filter	Add-on NOx Control	In-Combutor NOx Control	CO/VOC Control	Fuel	No. Tests	Average NOx, ppmv @ 15% O2	Average NO2/NOx
2650	LB	—	—	—	—	—	—	—	LFG	10	56.93	54.98
2650	LB	—	—	—	—	—	—	—	LFG	8	59.31	55.51
2650	LB	—	—	—	—	—	—	—	LFG	2	23.70	74.85
2650	LB	—	—	—	—	—	—	—	LFG	3	30.30	56.37

Maximum NO2/NOx	Minimum NO2/Nox	NO2/NOx Standard Deviation	Average Load, %
67.9	5.1	18.13075	97.5%
71.2	6.6	20.77605	97.5%
78.2	71.5	4.737615	97.4%
72.3	33.8	20.08889	95.5%

Exhibit 2L

NO2 Priority	D_NUM	M_DBA	PO_NUM	EQUIP_DESC
1	7630	WILDFLOWER ENERGY LP/LARKSPUR	976094	ONE (1) GENERAL ELECTRIC 45 MW NOMINALLY RATED MODEL LM 6000 PC SPRINT SIMPLE CYCLE GAS TURBINE WITH A HEAT INPUT RATING OF 395 MM BTU/HR (LHV) WHEN OPERATED ON NATURAL GAS AND 398 MM BTU/HR (LHV) WHEN OPERATED ON LIQUID FUEL, EQUIPPED WITH A WATER INJECTION SYSTEM AND CORMETECH SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM INCLUDING AUTOMATIC AMMONIA INJECTION CONTROL SYSTEM FOR CONTROL OF NOX, CONTINUOUS EMISSIONS MONITORING SYSTEM (CEMS), DATA ACQUISITION AND RECORDING SYSTEMS AND AND THE OPTION OF AN OXIDATION CATALYST SYSTEM: UNIT 100 (WEST UNIT) THE COMBINED TOTAL ELECTRICAL NOMINAL POWER OUTPUT FROM THE LARKSPUR POWER PLANT, INCLUDES POWER FROM UNIT 100 AND UNIT 200 IS 90 MW. 976094 EAD 01/06/03 (982160 11/04) 976138 AND 976094 04/20/05 (981537 04/05) 983806 12/29/05 EAD
1	7630	WILDFLOWER ENERGY LP/LARKSPUR	976138	ONE (1) GENERAL ELECTRIC 45 MW NOMINALLY RATED MODEL LM 6000 PC SPRINT SIMPLE CYCLE GAS TURBINE WITH A HEAT INPUT RATING OF 395 MM BTU/HR (LHV) WHEN OPERATED ON NATURAL GAS AND 398 MM BTU/HR (LHV) WHEN OPERATED ON LIQUID FUEL, EQUIPPED WITH A WATER INJECTION SYSTEM AND CORMETECH SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM INCLUDING AUTOMATIC AMMONIA INJECTION CONTROL SYSTEM FOR CONTROL OF NOX, CONTINUOUS EMISSIONS MONITORING SYSTEM (CEMS), DATA ACQUISITION AND RECORDING SYSTEMS AND THE OPTION OF AN OXIDATION CATALYST SYSTEM: UNIT 200 (EAST UNIT). THE COMBINED TOTAL ELECTRICAL NOMINAL POWER OUTPUT FROM THE LARKSPUR POWER PLANT, INCLUDING THE POWER FROM UNIT 100 AND UNIT 200 IS 90 MW 976094 AND 976136 EAD 1/6/03 (982160 11/04) 979094 AND 976136 EAD 4/20/05 (981537 04/20/05) 983806 EAD 12/29/05
1	7835	CALPEAK POWER LLC	976502	GAS TURBINE (49.5 MW): PRATT & WHITNEY, MODEL FT-8 (DLN), TWIN-PAC (TWO SIMPLE CYCLE GAS TURBINES WITH COMMON GENERATOR AND EXHAUST), 500 MMBTU/HR TOTAL HEAT INPUT, NATURAL GAS FIRED, WITH EXHAUST AIR COOLING, A PEERLESS MANUFACTURING COMPANY SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM WITH A HALDOR CATALYST, AN ENGELHARD OXIDATION CATALYST SYSTEM, A CONTINUOUS EMISSION MONITORING SYSTEM (CEMS), AND CONTINUOUS PARAMETRIC MONITORS. (976502AFS11JUL2002)(978638 ALC 09/04)(983962 & 984416 EAD 6/07/07)
1A	86017	CA ST OF DEPT C	860159	ONE(1) SOLAR CENTAUR GSC 4500 COMBUSTION TURBINE MODEL GS1-CB-KA, SERIAL NUMBER CG86N28; ELECTRICL GENRATOR RATED AT 2.93 MW; WASTE HEAT RECOVERY; ONE (1) COEN MODEL GDB-300 DUCT BURNER MODIFIED FOR MAXIMUM HEAT INPUT OF 16 MM BTU/HR WITH A BYPASS VALVE AND SECONDARY EXHAUST, WHICH ALLOWS THE EXHAUST TO BYPASS THE DUCTBURNER/HEAT RECOVERY BOILER. APP.#910523 RLB 5/25/93 (9/24/02 COMPLIANCE REQUESTED EQ. DESC. CHANGE-AFS)
1A		OTAY MESA ENE	978379	Power Station #1 consisting of: one Gas Turbine (171.7 MW nominal): General Electric, Model 7FA, with DLN 2.6 low-NOx burners, natural gas fired, 1607.1 MMBtu/hr nominal heat input (LHV), S/N TBD, with a heat recovery steam generator (HRSG) with a 388.1 MMBtu/hr duct burner, Nooter-Eriksen, vented to a selective catalytic reduction (SCR) system, equipped with a continuous emission monitoring system (CEMS); common to both power stations are a steam turbine generator (277 MW nominal), Siemans-Westinghouse, Model KN, S/N TBD; two air-cooled condensers, GEA, 295'L x 123'W x 76'H; a wet surface air cooler, Niagara Blower Co., Model RWC 48240-2F16, or equivalent; and an auxiliary boiler, 87 MMBtu/hr, with low-NOx burners.
1A		OTAY MESA ENE	978380	Power Station #2 consisting of: one Gas Turbine (171.7 MW nominal): General Electric, Model 7FA, with DLN 2.6 low-NOx burners, natural gas fired, 1607.1 MMBtu/hr nominal heat input (LHV), S/N TBD, with a heat recovery steam generator (HRSG) with a 388.1 MMBtu/hr duct burner, Nooter-Eriksen, vented to a selective catalytic reduction (SCR) system, equipped with a continuous emission monitoring system (CEMS); common to both power stations are a steam turbine generator (277 MW nominal), Siemans-Westinghouse, Model KN, S/N TBD; two air-cooled condensers, GEA, 295'L x 123'W x 76'H; a wet surface air cooler, Niagara Blower Co., Model RWC 48240-2F16, or equivalent; and an auxiliary boiler, 87 MMBtu/hr, with low-NOx burners.

DB = Duct Burner
Comb = Combined cycle including combined heat and power (i.e., cogeneration)
Simple = simple cycle
DF = Diffusion Flame
LPM = Lean Premixed
Aero = Aeroderivative
Ind = Industrial
SCR = Selective Catalytic Reduction
WI = Water Injection
OxCat = Oxidation Catalyst

M_DBA	PO_NUM	EQUIP_DESC	Mfg	Model	Type	Turbine Rated Power Output, MW	Turbine Rated Heat Input (HHV), MMBtu/hr	Combustor	Duct Burner	Duct Burner Rated Heat Input, MMBtu	DB Combustor	Rated DB Heat Input (HHV), MMBTu/hr	Cycle	Add-on NOx Control	In-Combustor NOx Control	CO/VOC Control	No. Tests Fired on Natural Gas with DB On	NG DB On Average NOx, ppmv @ 15% O2	Natural Gas DB On Average NO2/NOx	Natural Gas DB On Maximum NO2/NOx	Natural Gas DB On Minimum NO2/NOx	Natural Gas DB On NO2/NOx Standard Deviation	Natural Gas DB On Average Load, %	No. Tests Fired on Natural Gas with DB Off	NG DB Off Average NOx, ppmv @ 15% O2	Natural Gas DB Off Average NO2/NOx	Natural Gas DB Off Maximum NO2/NOx	Natural Gas DB Off Minimum NO2/NOx
WILDFLOWER ENERGY LP/LARKSPUR	976094	ONE (1) GENERAL ELECTRIC 45 MW NOMINALLY RATED MODEL LM 6000 PC SPRINT SIMPLE CYCLE GAS TURBINE WITH A HEAT INPUT RATING OF 395 MM BTU/HR (LHV) WHEN OPERATED ON NATURAL GAS AND 398 MM BTU/HR (LHV) WHEN OPERATED ON LIQUID FUEL, EQUIPPED WITH A WATER INJECTION SYSTEM AND CORMETECH SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM INCLUDING AUTOMATIC AMMONIA INJECTION CONTROL SYSTEM FOR CONTROL OF NOX, CONTINUOUS EMISSIONS MONITORING SYSTEM (CEMS), DATA ACQUISITION AND RECORDING SYSTEMS AND AND THE OPTION OF AN OXIDATION CATALYST SYSTEM: UNIT 100 (WEST UNIT) THE COMBINED TOTAL ELECTRICAL NOMINAL POWER OUTPUT FROM THE LARKSPUR POWER PLANT, INCLUDES POWER FROM UNIT 100 AND UNIT 200 IS 90 MW. 976094 EAD 01/06/03 (982160 11/04) 976138 AND 976094 04/20/05 (981537 04/05) 983806 12/29/05 EAD	GE	LM6000PC SPRINT	Aero	45	395	DF	—	—	—	—	Simple	SCR.	WI	—	0	N/A	N/A	N/A	N/A	N/A	N/A	3	5.16	14.07	17.00	9.30
WILDFLOWER ENERGY LP/LARKSPUR	976138	ONE (1) GENERAL ELECTRIC 45 MW NOMINALLY RATED MODEL LM 6000 PC SPRINT SIMPLE CYCLE GAS TURBINE WITH A HEAT INPUT RATING OF 395 MM BTU/HR (LHV) WHEN OPERATED ON NATURAL GAS AND 398 MM BTU/HR (LHV) WHEN OPERATED ON LIQUID FUEL, EQUIPPED WITH A WATER INJECTION SYSTEM AND CORMETECH SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM INCLUDING AUTOMATIC AMMONIA INJECTION CONTROL SYSTEM FOR CONTROL OF NOX, CONTINUOUS EMISSIONS MONITORING SYSTEM (CEMS), DATA ACQUISITION AND RECORDING SYSTEMS AND THE OPTION OF AN OXIDATION CATALYST SYSTEM: UNIT 200 (EAST UNIT). THE COMBINED TOTAL ELECTRICAL NOMINAL POWER OUTPUT FROM THE LARKSPUR POWER PLANT, INCLUDING THE POWER FROM UNIT 100 AND UNIT 200 IS 90 MW 976094 AND 976136 EAD 1/6/03 (982160 11/04) 979094 AND 976136 EAD 4/20/05 (981537 04/20/05) 983806 EAD 12/29/05	GE	LM6000PC SPRINT	Aero	45	395	DF	—	—	—	—	Simple	SCR.	WI	—	0	N/A	N/A	N/A	N/A	N/A	N/A	2	4.74	9.60	16.30	2.90
CALPEAK POWER LLC	976502	GAS TURBINE (49.5 MW): PRATT & WHITNEY, MODEL FT-8 (DLN), TWIN-PAC (TWO SIMPLE CYCLE GAS TURBINES WITH COMMON GENERATOR AND EXHAUST), 500 MMBTU/HR TOTAL HEAT INPUT, NATURAL GAS FIRED, WITH EXHAUST AIR COOLING, A PEERLESS MANUFACTURING COMPANY SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM WITH A HALDOR CATALYST, AN ENGELHARD OXIDATION CATALYST SYSTEM, A CONTINUOUS EMISSION MONITORING SYSTEM (CEMS), AND CONTINUOUS PARAMETRIC MONITORS. (976502AFS11JUL2002)(978638 ALC 09/04)(983962 & 984416 EAD 6/07/07)	PW	FT-8	Aero	49.5	500	LPM	—	—	—	—	Simple	SCR.	—	OxCat	0	N/A	N/A	N/A	N/A	N/A	N/A	2	2.93	10.52	14.60	6.43
CA ST OF DEPT (	860159	ONE(1) SOLAR CENTAUR GSC 4500 COMBUSTION TURBINE MODEL GS1-CB-KA, SERIAL NUMBER CG86N28; ELECTRICL GENRATOR RATED AT 2.93 MW; WASTE HEAT RECOVERY; ONE (1) COEN MODEL GDB-300 DUCT BURNER MODIFIED FOR MAXIMUM HEAT INPUT OF 16 MM BTU/HR WITH A BYPASS VALVE AND SECONDARY EXHAUST, WHICH ALLOWS THE EXHAUST TO BYPASS THE DUCTBURNER/HEAT RECOVERY BOILER. APP.#910523 RLB 5/25/93 (9/24/02 COMPLIANCE REQUESTED EQ. DESC. CHANGE-AFS)	SOLAR	GSI-CB-KA	Ind	2.93		DF	DB	16		16	Comb	—	WI	—	5	21.50	49.64	69.60	34.10	14.85	85.35	0	N/A	N/A	N/A	N/A
OTAY MESA ENE	978379	Power Station #1 consisting of: one Gas Turbine (171.7 MW nominal): General Electric, Model 7FA, with DLN 2.6 low-NOx burners, natural gas fired, 1607.1 MMBtu/hr nominal heat input (LHV), S/N TBD, with a heat recovery steam generator (HRSG) with a 388.1 MMBtu/hr duct burner, Nooter-Eriksen, vented to a selective catalytic reduction (SCR) system, equipped with a continuous emission monitoring system (CEMS); common to both power stations are a steam turbine generator (277 MW nominal), Siemans-Westinghouse, Model KN, S/N TBD; two air-cooled condensers, GEA, 295'L x 123'W x 76'H; a wet surface air cooler, Niagara Blower Co., Model RWC 48240-2F16, or equivalent; and an auxiliary boiler, 87 MMBtu/hr, with low-NOx burners.	GE	7FA	Ind	171.7	1607.1	LPM	DB	388.1		388.1	Comb	SCR	—	—	2	1.51	5.33	6.13	4.53	1.13	130.46	2	1.55	6.97	7.33	6.60
OTAY MESA ENE	978380	Power Station #2 consisting of: one Gas Turbine (171.7 MW nominal): General Electric, Model 7FA, with DLN 2.6 low-NOx burners, natural gas fired, 1607.1 MMBtu/hr nominal heat input (LHV), S/N TBD, with a heat recovery steam generator (HRSG) with a 388.1 MMBtu/hr duct burner, Nooter-Eriksen, vented to a selective catalytic reduction (SCR) system, equipped with a continuous emission monitoring system (CEMS); common to both power stations are a steam turbine generator (277 MW nominal), Siemans-Westinghouse, Model KN, S/N TBD; two air-cooled condensers, GEA, 295'L x 123'W x 76'H; a wet surface air cooler, Niagara Blower Co., Model RWC 48240-2F16, or equivalent; and an auxiliary boiler, 87 MMBtu/hr, with low-NOx burners.	GE	7FA	Ind	171.7	1607.1	LPM	DB	388.1		388.1	Comb	SCR	—	—	2	1.48	4.06	4.26	3.87	0.28	128.70	1	1.46	3.87	3.87	3.87

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M_DBA	PO_NUM	EQUIP_DESC	Natural Gas DB Off NO2/NOx Standard Deviation	Natural Gas DB Off Average Load, %	No. Tests Fired on Diesel Oil	Oil Average NOx, ppmv @ 15% O2	Oil Average NO2/Nox	Oil Maximum NO2/NOx	Oil Minimum NO2/NOx	Oil NO2/NOx Standard Deviation	Oil Average Load, %	Notes
WILDFLOWER ENERGY LP/LARKSPUR	976094	ONE (1) GENERAL ELECTRIC 45 MW NOMINALLY RATED MODEL LM 6000 PC SPRINT SIMPLE CYCLE GAS TURBINE WITH A HEAT INPUT RATING OF 395 MM BTU/HR (LHV) WHEN OPERATED ON NATURAL GAS AND 398 MM BTU/HR (LHV) WHEN OPERATED ON LIQUID FUEL, EQUIPPED WITH A WATER INJECTION SYSTEM AND CORMETECH SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM INCLUDING AUTOMATIC AMMONIA INJECTION CONTROL SYSTEM FOR CONTROL OF NOX, CONTINUOUS EMISSIONS MONITORING SYSTEM (CEMS), DATA ACQUISITION AND RECORDING SYSTEMS AND AND THE OPTION OF AN OXIDATION CATALYST SYSTEM: UNIT 100 (WEST UNIT) THE COMBINED TOTAL ELECTRICAL NOMINAL POWER OUTPUT FROM THE LARKSPUR POWER PLANT, INCLUDES POWER FROM UNIT 100 AND UNIT 200 IS 90 MW. 976094 EAD 01/06/03 (982160 11/04) 976138 AND 976094 04/20/05 (981537 04/05) 983806 12/29/05 EAD	4.16	101.41	1	11.10	5.70	5.70	5.70	#DIV/0!	98.22	
WILDFLOWER ENERGY LP/LARKSPUR	976138	ONE (1) GENERAL ELECTRIC 45 MW NOMINALLY RATED MODEL LM 6000 PC SPRINT SIMPLE CYCLE GAS TURBINE WITH A HEAT INPUT RATING OF 395 MM BTU/HR (LHV) WHEN OPERATED ON NATURAL GAS AND 398 MM BTU/HR (LHV) WHEN OPERATED ON LIQUID FUEL, EQUIPPED WITH A WATER INJECTION SYSTEM AND CORMETECH SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM INCLUDING AUTOMATIC AMMONIA INJECTION CONTROL SYSTEM FOR CONTROL OF NOX, CONTINUOUS EMISSIONS MONITORING SYSTEM (CEMS), DATA ACQUISITION AND RECORDING SYSTEMS AND THE OPTION OF AN OXIDATION CATALYST SYSTEM: UNIT 200 (EAST UNIT). THE COMBINED TOTAL ELECTRICAL NOMINAL POWER OUTPUT FROM THE LARKSPUR POWER PLANT, INCLUDING THE POWER FROM UNIT 100 AND UNIT 200 IS 90 MW 976094 AND 976136 EAD 1/6/03 (982160 11/04) 979094 AND 976136 EAD 4/20/05 (981537 04/20/05) 983806 EAD 12/29/05	9.48	103.11	1	12.10	2.80	2.80	2.80	#DIV/0!	100.00	
CALPEAK POWER LLC	976502	GAS TURBINE (49.5 MW): PRATT & WHITNEY, MODEL FT-8 (DLN), TWIN-PAC (TWO SIMPLE CYCLE GAS TURBINES WITH COMMON GENERATOR AND EXHAUST), 500 MMBTU/HR TOTAL HEAT INPUT, NATURAL GAS FIRED, WITH EXHAUST AIR COOLING, A PEERLESS MANUFACTURING COMPANY SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM WITH A HALDOR CATALYST, AN ENGELHARD OXIDATION CATALYST SYSTEM, A CONTINUOUS EMISSION MONITORING SYSTEM (CEMS), AND CONTINUOUS PARAMETRIC MONITORS. (976502AFS11JUL2002)(978638 ALC 09/04)(983962 & 984416 EAD 6/07/07)	5.77	95.96	0	N/A	N/A	N/A	N/A	N/A	N/A	
CA ST OF DEPT (	860159	ONE(1) SOLAR CENTAUR GSC 4500 COMBUSTION TURBINE MODEL GS1-CB-KA, SERIAL NUMBER CG86N28; ELECTRICL GENRATOR RATED AT 2.93 MW; WASTE HEAT RECOVERY; ONE (1) COEN MODEL GDB-300 DUCT BURNER MODIFIED FOR MAXIMUM HEAT INPUT OF 16 MM BTU/HR WITH A BYPASS VALVE AND SECONDARY EXHAUST, WHICH ALLOWS THE EXHAUST TO BYPASS THE DUCTBURNER/HEAT RECOVERY BOILER. APP.#910523 RLB 5/25/93 (9/24/02 COMPLIANCE REQUESTED EQ. DESC. CHANGE-AFS)	N/A	N/A	0	N/A	N/A	N/A	N/A	N/A	N/A	
OTAY MESA ENE	978379	Power Station #1 consisting of: one Gas Turbine (171.7 MW nominal): General Electric, Model 7FA, with DLN 2.6 low-NOx burners, natural gas fired, 1607.1 MMBtu/hr nominal heat input (LHV), S/N TBD, with a heat recovery steam generator (HRSG) with a 388.1 MMBtu/hr duct burner, Nooter-Eriksen, vented to a selective catalytic reduction (SCR) system, equipped with a continuous emission monitoring system (CEMS); common to both power stations are a steam turbine generator (277 MW nominal), Siemans-Westinghouse, Model KN, S/N TBD; two air-cooled condensers, GEA, 295'L x 123'W x 76'H; a wet surface air cooler, Niagara Blower Co., Model RWC 48240-2F16, or equivalent; and an auxiliary boiler, 87 MMBtu/hr, with low-NOx burners.	0.52	133.37	0	N/A	N/A	N/A	N/A	N/A	N/A	
OTAY MESA ENE	978380	Power Station #2 consisting of: one Gas Turbine (171.7 MW nominal): General Electric, Model 7FA, with DLN 2.6 low-NOx burners, natural gas fired, 1607.1 MMBtu/hr nominal heat input (LHV), S/N TBD, with a heat recovery steam generator (HRSG) with a 388.1 MMBtu/hr duct burner, Nooter-Eriksen, vented to a selective catalytic reduction (SCR) system, equipped with a continuous emission monitoring system (CEMS); common to both power stations are a steam turbine generator (277 MW nominal), Siemans-Westinghouse, Model KN, S/N TBD; two air-cooled condensers, GEA, 295'L x 123'W x 76'H; a wet surface air cooler, Niagara Blower Co., Model RWC 48240-2F16, or equivalent; and an auxiliary boiler, 87 MMBtu/hr, with low-NOx burners.	#DIV/0!	99.59	0	N/A	N/A	N/A	N/A	N/A	N/A	

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:d cycle including combined heat and power (i.e., cogeneration)
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Exhibit 2M

Steve Hill

From: Moore, Steve <Steve.Moore@sdcounty.ca.gov>
Sent: Friday, June 03, 2011 9:02 PM
To: Steve Hill
Cc: Desiena, Ralph
Subject: Cumulative Impact Information
Attachments: PACIFIC RECOVERY 2004.docx; Calpeak Border TITLEVPERMIT976502DRIII.doc; Larkspur 1 and 2.docx; Larkspur TITLEVPERMIT976138DRII.doc; OTAY AMENDMENT 2 2003.doc; Otay Generating Normal and StartUp Inputs.zip; Pacific Recovery 1999.docx; Turbine NO2 to NOx.xlsx; Pacific Recovery Eng 1 1310_001.pdf; Pacific Recovery Eng 2 1311_001.pdf; Pacific Recovery Eng 3 1312_001.pdf; Pacific Recovery Eng 4 1313_001.pdf; Pacific Recovery NO2toNOx.xlsx

Follow Up Flag: Follow up
Flag Status: Completed
Expires: Monday, May 31, 2021 12:00 AM

Steve,

Hopefully, the attached information with the information provided previously is all the information you need, but probably not.

All the AQIA reports and modeling files are courtesy of Ralph Desiena. The Otay Mesa files are for the final permit amendment. You may already have these.

You can use the NO2/NOx ratio in the attached spreadsheet for the Otay Mesa Energy Center (OMEC), even if I gave you conflicting information previously. However, it is not necessarily applicable to other large combined cycle turbines—especially those with an oxidation catalyst (OMEC does not have an oxidation catalyst).

The permits provided for the peakers are proposed Title V renewal permits since that was convenient. The permits have not been officially issued yet, but they have been through EPA and public review and comment. I would not expect any changes that would affect your calculations.

Let me know if you have any questions, but Ralph would be the best person to contact regarding the AQIAs and modeling files. I'll be in on Tuesday.

Thanks.

Steven Moore
Senior Air Pollution Control Engineer
San Diego County Air Pollution Control District
10124 Old Grove Road, San Diego, CA 92131

858-586-2750

Celebrating 50 years of air quality progress!

BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT
COMMISSION OF THE STATE OF CALIFORNIA
1516 NINTH STREET, SACRAMENTO, CA 95814
1-800-822-6228 – WWW.ENERGY.CA.GOV

APPLICATION FOR CERTIFICATION
FOR THE *PIO PICO ENERGY CENTER, LLC*

Docket No. 11-AFC-1
PROOF OF SERVICE
(Revised 5/12/11)

Pio Pico Energy Center, LLC
Letter to Eric Solorio, Siting Project Manager, California Energy Commission, dated August 17, 2011 re Applicant's Responses to Staff's Data Requests, Set 2

APPLICANT

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DECLARATION OF SERVICE

I, Kimberly, declare that on August 17, 2011, I deposited copies of the aforementioned document in the United States mail at 500 Capitol Mall, Suite 1600, Sacramento, California 95814, with first-class postage thereon fully prepaid and addressed to those identified on the Proof of Service list above.

AND/OR

Transmission via electronic mail, personal delivery and first class U.S. mail were consistent with the requirements of California Code of Regulations, Title 20, sections 1209, 1209.5, and 1210. All electronic copies were sent to all those identified on the Proof of Service list above.

I declare under penalty of perjury that the foregoing is true and correct.

Kimberly J. Hellwig